

Aviation News

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Navy's Glider Bombs: Two of the war-developed aerial weapons that have just come off the secret list, the radio-controlled Taylorcraft-built glider, top, and the "glomb" (glider bomb), bottom. The Taylorcraft LBT-1 carries 1,670-lbs. of explosive at more than 280-mph., while the LBE-1 glomb carries an undisclosed bomb at 300-mph. Production of both has been discontinued.

Intensified Research Work Forecast by Developments

Navy unveiling of highly advanced television and automatically guided missiles indicates move to seek increased funds.....Page 7

Rapid Switchover to VHF in Private Plane Sets Seen

New Bendix *Flightweight* equipment to be built only for very high frequency work; early federal ruling on channels awaited.....Page 15

Ship Firm Plans Intrastate Airline, Beyond CAB Control

Waterman, which first applied for interstate air services in 1940, schedules Mobile-Muscle Shoals flights beginning Nov. 15.....Page 37

Airport Operators Face Crisis As 20 Towers Close

Bulk of municipalities and private interests are finding cost of maintaining war-expanded service is far too costly.....Page 41



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AMERICA'S PERSONAL PLANE
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THE AVIATION NEWS

Washington Observer

COMPOSITE POWERPLANTS—The Navy's recent report on research started some speculation regarding composite powerplants. While stating that a composite powerplant, consisting of a reciprocating engine and a jet unit, has great promise, Navy declared this type particularly effective "for dive bombers, torpedo bombers and long-range patrol land planes." The Ryan Fireball, the Navy's most recent unconventional aircraft, has a composite powerplant and is a fighter but no mention was made of fighters in the Navy comment.

POST-WAR CARRIERS—The Navy's aircraft carrier fleet stood well under legislation just approved by the House which expresses the "sense" of Congress that the Navy should maintain three carriers of approximately 45,000 tons; 24 carriers of approximately 17,000 tons; 10 light carriers of approximately 11,500 tons and 79 escort carriers. That is the present composition. The legislation lacks the effect of law, however, and is merely an expression of congressional intent for Navy guidance.

SURFACE CARRIERS OUT—Close observers here are virtually no chance for a change in CAB opinion that surface carriers should be kept out of trunk airline operation. Bolstering this belief is the report that President Truman let it be known a few days ago he agreed with this interpretation of the Civil Aeronautics Act. Some steamship executives recently have been looking hope CAB would change its views in the Latin American zone; decision expected soon.

STATE JURISDICTION—CAA will make a strong attempt to resolve once and for all the question of respective jurisdiction by the federal government and by the states at the meeting of the National Association of State Aviation Officials, opening today in St. Louis. Representatives of NASAO some time ago agreed, subject to association approval, to CAA proposals on the matter, but CAA has some additional ideas it hopes will be accepted at St. Louis.

SURPLUS ENGINES—Latest proposed use of surplus aircraft engines is in pumping, electric power and other auxiliary installation needed in China. In response to inquiry, Chinese engineers in Washington say tests have been under consideration but small hope was held for success.

CONGRESSIONAL VIEWPOINT—Perhaps epitomizing a Congressional return to a positive viewpoint so far as military aviation expenditures are concerned is the following exchange between Gen. Arnold and Rep. Clarence Cannon (D-Mo.), chairman of the important House Appropriations Committee. Rep. Cannon—Gen. Arnold, your name has become synonymous with winged victory. We owe credit to a great many people for victory in this war, we owe a composite credit, but we certainly owe as much to you, if not more, than to any other one man. Gen. Arnold—Thank you very much Mr. Chairman. Rep. Cannon—We believe we will be able to save a great deal of money in your branch of the service, General. Your service is a very costly one. . . .



The model of a guided missile, a Navy weapon, planned to carry 1,000-lbs. of general purpose explosive to the target at 400-mph. The ring at the top houses the powerplant.

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November 5, 1945

AERO-SCIENCE EMPHASIS

Intensified Research Programs Forecast By New Developments

Navy unveiling of highly advanced television and astronomical guided missiles highlights crystallization of armed service plans for increased experimental funds; maintenance of aeronautical leadership is keynote.

By WILLIAM KROGER

Plans for keeping U. S. aeronautical leadership through intensified research appear clearer in the wake of disclosures of some of the achievements to date of the Navy, the aircraft industry and National Advisory Committee for Aeronautics, together with fuller details of the AAF's projected research budget this fiscal year.

Navy's sudden revelation, last week of some of its new projects, and plans for the future, is seen in some quarters as advance notice that greater appropriations for research will be asked.

In recent hearings before the House subcommittee on naval appropriations, Assistant Secretary for Air John L. Sullivan stressed that Navy's original estimate for research expenditures in fiscal 1946 was \$148,255,565.

"That was reduced to \$81,000,000 when the estimate was forwarded to Congress," Sullivan stated. He emphasized that the Navy had not made the reduction, from which it is inferred that the Budget Bureau ordered the cut.

AAF research expenditures in the current fiscal year will be \$115,993,168, it was disclosed to Congress, with an additional \$5,420,000 being spent on controlled missiles. AAF's research expenditures also were drastically reduced by the Budget Bureau, according to Gen. H. H. Arnold. AAF asked for \$245,577,468.

As example of what it has been doing in the new air weapons field, the Navy last week unveiled devices with such weird names as "Gloob," "Gorgon," and "Gargyle."

► *Gloob* is a pilotless glider carry-

ing a 4,000-lb bomb. In appearance resembling a single-place, low-winged biplane, it is towed by a lighter plane, then released and guided to the target by television. Labeled the LSE-1, it is capable of outspeeding a speed of 344-mph in a four-G dive.

► *Gorgon* is a jet-propelled missile carried by a bomber and guided to the target either by radio or by its own target-seeking device. It carries a 160-lb bomb at 550-mph.

► *Gargyle* is likewise a jet-propelled missile which carries a 1,900-lb bomb at 694-mph and automatically seeks its target. Its Navy designation is LFB-1, and it is being manufactured by the McDonnell Aircraft Corp. of St. Louis.

The deftless equipment which makes these controlled missiles so accurate is being continuously developed, the Navy asserts. Utilized are "airborne radars which can initiate defense and automatic circuitry which can instantly release the airborne counter-missile." Putting up the emphasis on radar is the statement that a patrol bomber now carries 27 tons of electronic equipment weighing nearly one ton.

In powerplants, the Navy believes the gas turbine for jet propulsion offers the possibility of great speed but "the pure turbo-jet engine is not developed to the degree of reliability found in the reciprocating engine." Of special interest for the future is the turbine-propeller combination.

► *Speed Problem*—With the development of such power applications, designers come face to face with the problems of compressibility met at high speeds, it was stated last week by Russell G. Robinson, chief of research organization of NACA. These are problems which must be faced immediately met at high speeds, it was stated last week by Russell G. Robinson, chief of research organization of NACA. These are problems which must be faced immediately met at high speeds, it was stated last week by Russell G. Robinson, chief of research organization of NACA.

To meet the military's requirements, he said, the aircraft industry would like to have "five



"Gargon": A jet-propelled guided missile, this shark-like device carries a 190-lb. explosive charge at 694-mph. It was developed at the Naval Air Materiel Unit, Johnsville, Penna., and named Gargon.



"Gargoyles": Built for the Navy by the McDonnell Aircraft Corp. of St. Louis, this guided missile is used as a dive bomber, carries a 1,000-lb. all-purpose bomb at 600-mph, and is called Gargoyles.



Radio Gilder: Directed and controlled by radio, this Taylorcraft-built glider carries a 345-lb. depth charge at a maximum speed of 170-mph. Designated the LNT-1, production has now been discontinued.

lines as much research data in the next six months as can be obtained from existing high speed wind tunnels."

The difficulties attendant to increased speed are not limited to one phase of aeronautical design, he emphasized. At one time aerodynamic problems, structural problems and powerplant problems could be considered separately. Now, however, they must be tackled together because all are affected by transonic and supersonic speeds.

C-W Devices—One of these problems was highlighted in the report of the experiments by Curtiss-Wright Corp. with "special

light devices" that have achieved speeds of 1,400-mph. Dr. C. C. Farnas, director of research, revealed that Curtiss-Wright engineers are studying air-conditioning methods for the outer skin of aircraft. At the 1,300-mph clip, friction causes the temperature of the skin to rise more than 400 degrees Fahrenheit.

While not describing the device which attained that speed, nor the form of propulsion, Farnas did insist it is not a rocket, but a true flying device. Company has been working out attendant problems in its own wind tunnel.

Another company working on radio-controlled problems aircraft

is Bell Aircraft Corp., which is also developing guided missiles and rockets. Bell's radio plane can be directed either from the air or ground.

Bourne, Airways Chief, Quits CAA

Thomas H. Bourne, Assistant CAA Administrator for Federal Airways, last week resigned after 18 years in the Government's civil aviation agencies.

He will act as a private aviation consultant, with his first project a survey for an airways system in Mexico on behalf of Aeronautical Radio, Inc. He also will be associated with Maryland Airlines, non-scheduled operator in his home state.

Flowers—During his long tenure in the Government, Bourne set up the present system of Federal airways, building a pioneer group of half dozen employees into the largest single bureau of CAA employing more than 3,000 people.

Bourne has been recognized as an authority on radio ranges and communications and has been active in pushing the development of VOR and other late innovations. Indirectly relating to the personnel changes which are occurring in CAA, Bourne said in his resignation letter to Administrator T. H. Wright:

"After 18 years of serving with many administrators, I know of no other administrator who has gained the admiration and respect of the organization as quickly and genuinely as you have. Many Airways personnel will come before you for advancement in the near future. In weighing the qualifications of these men for higher positions in Government, I hope you will take into consideration the philosophy upon which Airways has been built. It originated during the Reign of Terror period of 1934, and it hangs in my foot wall of the Eastern Shore at Maryland as a banner statement. The lack of honesty is largely responsible for our economic and political confusion."

Leaving Bourne for his "outstanding contribution," Wright replied that "The men for those of us who remain, which will be continuing the expansion and development of the Federal Airways system, will be the easier because of the sound foundation on which we have been built, in which you have contributed so much."

CAA Report Forecasts Aviation Services, Expansions In 1955

Thirty percent annual increase in civil planes would bring total to 400,000 as facilities are provided; airlines seen carrying 20,000,000 domestic passengers, 2,000,000 abroad; production would require 459,800 workers.

Looking ahead 18 years at "Civil Aviation and the National Economy," the Civil Aeronautics Administration forecasts a 30 percent annual increase in aircraft as they acquire greater utility and more airports are provided, with the result that there will be more than 400,000 civil airplanes in use in the United States by 1955.

This comprehensive study of the industry's possibilities during the next 18 years concludes that of the 400,000 aircraft, some 200,000 will be used for personal business and recreation; 40,000 by business concerns to speed their sales and administrative activities; and 80,000 by commercial aircraft and services in crop-dusting, aerial photography and other non-scheduled operations.

Airlines—The report predicts that airlines will carry 20,000,000 passengers in domestic operations during 1955 and 2,000,000 passengers to foreign ports.

A total of 901,390 jobs in, or created by, aviation is predicted for 1955, compared with 142,331 in 1939.

This total is divided as follows:

Manufacturing	1939	1955	Total
Airplane Engines	201,000	414,000	615,000
Non Air Carrier	10,000	100,000	110,000
Airports	10,000	100,000	110,000
Ground Support	20,000	100,000	120,000
Air Aviation	100,000	200,000	300,000

Includes personal flying systems field to carry out other non-scheduled operations of commercial air aviation, such as aerial photography, aerial photography, etc.

Greater field for immediate action of civil aviation, according to the report, exists in the development of personal flying Personal aircraft today are seen as being in a stage comparable to the automobile at the turn of the century.

Passenger Revenue—Annual passenger revenue of about \$945,000,000 a forecast for the airlines, which would take about five percent of the total amount expected to be spent for all forms of "personal transportation" in 1955. That figure would represent 85 percent of

Pullman passenger mileage, but the report said that "bulk freight-hauling business, which is the main source of income to surface carriers would be virtually unchanged."

Attainment of the goals, the report states, is dependent upon a Federal program of assistance to civil aviation, essentials of which are listed as a national airport plan, pilot training and aviation education, and technical aids such as improved airway systems.

The study warns that a positive program is needed to take advantage of the present "ideal combination of circumstances for aviation growth." It points out that the end of the war has released aviation facilities which will go to seed unless immediate concrete steps are worked out.

Social Effect—Aviation growth

'Hump' Race

From Douglas Aircraft Company's publicity office at Burbank, Calif., comes a report of the biggest air race ever staged—and without an accident.

Personalities of two adjoining air races are said to have attended a performance held on Air Force Day, Aug. 1, with a 30-hour race to see who could carry the greatest quantity of cargo over the India-China "Hump."

Presumably, both races were evenly matched in the number of C-54 Superfortresses which began the sprint at the team of a military unit. Twenty-five hours later one group had completed 166 trips and the other 106. The record for reloading, refueling and returning to the air was nine minutes and 30 seconds for one plane.

will affect our entire way of living, the report concludes, holding that it will contribute to both industrial and residential development, widen markets for perishable agricultural products, increase foreign trade and promote international understanding and step up the total amount of traveling.



ROTACHUTE

Designed to drop paratroopers from planes behind enemy lines, the ROTACHUTE has been developed at Wright Field, Ohio. The 30-lb. device works like an autogyro without power, will lower a 30-lb. load of a paratrooper and his equipment to the ground. That of the odd-looking aircraft enables occupant to steer it within a limited range.

Engineering Staff Unionization Draws Close Industry Attention

Introduction of new group to collective bargaining seen possible pattern for similar moves throughout country; overtime pay highlighted; Boeing, Convair patent sight plans called model for all manufacturers.

Effects of the unionization of Lockheed's and, recently, Hughes Aircraft's engineering staffs may be expected to draw the close attention of all major aircraft manufacturers in coming months.

The one-time social and technological Engineers' and Architects' Assn. has assumed the status of an independent union to introduce the aircraft engineering fraternity to collective bargaining.

Vanguard—Number 1 Chapter, and test unit, was the Burbank Chapter, which entered Lockheed Aircraft Corp.'s engineering division to sell professional and sub-professional engineers the idea that they could become as collectively strong as the simply unskilled production workers and take advantage of union benefits.

A former Lockheed draftsman, R. Koenigsberg, did a thorough selling job as business agent, and Burbank Chapter of EAA soon was able to carry NLRB elections and became the bargaining agent for 1,600 salaried and hourly-pay members of engineering departments.

Koenigsberg claims that engineers who class themselves as "professional" have been as ready to join as "sub-professional" draftsman.

He says that Burbank Chapter has no members 70 percent of Lockheed's aerodynamic engineers, 90 percent of staff engineers, and 90 percent of "A" design engineers.

Hughes Aircraft's engineers at Culver City, Calif., voted 76 to

38 for EAA to be their bargaining agent.

The Triplet & Barlow aircraft X-ray firm is believed to be next in line for an EAA collective bargaining vote, and there have been a scattering of membership inquiries from the engineers at both the Douglas and the Northrop aircraft companies.

Elated over its aircraft success, EAA now is spreading its unionizing activities into state government offices, paying particular attention to gathering members among engineers of the California State Division of Highways.

Overall Outlook—As a result of this diversion from the original aircraft goal, EAA soon may consolidate its pioneering Burbank Chapter and other aviation groups into a single "Aircraft Chapter, EAA," with various sections for the benefit of branches of various organized aircraft manufacturing firms.

When Engineers' and Architects' Assn. was organized in 1944 its purpose was to provide the engineering profession with a medium for swapping technical information and with a focal point for their social interests.

During the "Depression" EAA did a profitable job as an employment agency and job clearing house for its members.

Inequities of that period probably engendered a gradual growth of the plan to create a union that might strengthen the position of engineers, and EAA membership rolls.

Present Problem—Today EAA sees jeopardy in the status of production workers who are given additional pay for their overtime work and engineering "professionals" whose prewar enthusiasm frequently leads to added hours of work without added compensation.

Also an objective is the improvement of rating and review of engineering job classifications.

Truman Talk Off

Conciliation of President Truman's November travel commitments because of the press of affairs in Washington, will cause him to miss the Third National Aviation Clinic at Oklahoma City, Mo. 19-21. He was scheduled to have addressed the opening day of the clinic.

Low Sales Return Percentage Marks Wartime Financial Study

Compilation presented to Congress shows that ratio of profits to net worth, however, was increasing at same time; picture of air industry changes presented in averaging of statistics from 17 large manufacturers.

The great changes wrought in the financial structure of the aircraft industry during the war were highlighted by a percentage drop in return on sales, as measured against pre-war years, while the ratio of profits to net worth was increasing. It is revealed in figures put before Congress.

The statistics were based on reports of 17 large manufacturers compiled by the Office of Price Administration and furnished to Sen. James E. Smith (D-Mont.). The compilation averaged figures for the years 1938-39, and compared them with like calculations for 1944.

'38-'39—Companies reporting net profits after taxes in 1938-39 of \$13,885,000, an net sales of \$5,480,620,000, a profit increase of 797 percent over the 1935-36 period. However, while profits in the pre-war years were 14 percent of sales, this dropped to two percent in 1944.

Net worth, in the statistics used, is the sum of common and preferred stock, surplus and surplus reserves. In pre-war years, profits after taxes were 14 percent of net worth. In 1944, this return averaged 2 percent.

The oddity of return on sales decreasing while return on net worth increased might be partially explained by examination of proportional increases. While profits were jumping 797 percent, net worth was going up, but to a lower relative base, an increase of 313 percent. Profits did not increase as fast as sales, which skyrocketed 4,990 percent, due to higher costs of labor, materials, etc.

The effect of the high wartime taxes is also reflected in the proportional revenue figure.

Before the war, profits before income taxes were 13 percent of net sales and 30 percent of net worth.

In 1944, profits before income taxes were a lower percent of net sales, but—indicating the extent of under-capitalization of the industry—50 percent of net worth.

What the war would mean financially to the companies report-

ing is partially shown in the surplus figures. Before the war, the total surplus was \$46,290,000. This went up by 1944 to \$389,288,000, an increase of 866 percent. Net worth averaged \$37,294,000 in the 1938-39 period, and was \$970,224,669 in 1944.

Invested capital, the sum of net worth and long-term debt, showed a parallel gain. Pre-war it was \$79,160,000, and \$979,571,668 in 1944, up 848 percent.

James E. Smith's study of preferred and common stock less treasury stock, did not keep pace. Average outstanding pre-war was valued at \$37,162,000, and increased 110 percent to \$77,935,668 in 1944.

Debt—Long-term debt, in the statistics available and characterized as obligations extending one year or more, increased also during the war but, perhaps indicative of the uncertain future of the industry, rose only 37 percent, as contrasted to the great increases in other categories.

Companies on which the OPA tabulations are based are Aero Supply Manufacturers Co., Air Associates; Aviation Corp.; Bellanca Aircraft Corp.; Beech Aircraft, Beech Corp.; Cessna Consolidated; Cessna; Consolidated Vultee; Douglas; Martin; Grumman; Lockheed; North American Aviation; Republic Aircraft; Steel Products Engineering Corp.; United Aircraft; Warner Aircraft Corp.

Navy Started Early

All of Navy's experiments with advanced types of aerial weapons were not war-born. As early as 1940, a radio-controlled pilotless torpedo plane was developed by the Navy from 10 miles away in an attack against a maneuvering destroyer. Its torpedoes scored a 100 percent hit rate in experiments. The Navy developed several types of assault areas which were used against the Japanese at Rabaul.

Lee Stays on Cab

Josh Lee will not resign from the CAB, nor will he run for governor of Oklahoma in the next campaign, he informs Aviation News. For several months various rumor mills have been circulating the report that Lee would leave the board at the near future. His statement follows:

"I have been requested by Aviation News to comment on repeated rumors to the effect that I will resign from the Civil Aeronautics Board. I should like to make clear at this time that I have no intention whatsoever of resigning. It is true that I have received many requests from friends that I enter the gubernatorial campaign in Oklahoma. I am deeply appreciative of the interest, however, as long as commercial aviation is in its most crucial period of postwar development and adjustment, especially in international and local feeder services. I feel that an exceptionally important job requires to be done here during the balance of my term."

Expressions of CAB membership leave are Dec. 31 of the following year; the post resigned by Edward Wigner, 1945; L. Welch Page, chairman, 1946; Oliver Rios, 1946; Lee, 1949; Harlowe Thrush, 1950.



RADAR TAIL TURRET

This radar scanning installation will train the tail guns of a bomber on an enemy plane attacking from the rear, before it comes into visual range of the gunner, was disclosed recently at Wright Field.



BACK-TO-BACK BOMBER:

Carrying a crew of two, seated back-to-back and with an emergency rest in the rear of the fuselage, this Bimetal 219 was used as a night fighter-bomber in 1946-48. A top speed of 315 mph was reached at 21,600-ft. powered by two BMW 701's or GDB 601's. Range has been estimated at 963 miles at optimum fuel economy settings. Of all-metal construction, it weighs 29,900-lb. gross. Present view of the ship emphasizes the close look of the two-seat tandem fuselage.



Mail Pay Rate Set For "Big-4" Lines

Board order establishes 45 cents per ton-mile, retroactive to Jan. 1, for TWA, AA, EAL, UAL.

A mail pay rate of 45 cents per ton-mile, retroactive to Jan. 1, 1948, was set for the "Big Four" air carriers in CAB orders issued last week.

The action closed a proceeding begun by the board when, on Jan. 1, it directed American Airlines, Eastern Air Lines, Transcontinental & Western Air and United Air Lines to show why their mail rate should not be reduced from 60 cents to 33 cents per ton-mile.

Security Need — Subsequently, the original orders were amended to provide for the 45-cent rate (Aviation News, Aug. 28). Upward revision was necessary, CAB felt, to provide reasonable security against fluctuating and unpredictable operating conditions.

Willingness of the carriers to accept the new rate was expressed at a brief hearing (Aviation News, Sept. 16). TWA, however, accepted reluctantly, asking the board to make the rate effective as of Oct. 1.

CAB member Maxfield Branch, in a separate concurring opinion, indicated that he will support an amended mail cost formula in the subsequent mail rate-making when conditions are favorable.

"I believe," Branch said, "that a sound permanent policy requires that service mail rates be closely related to the costs of the mail service, and if conditions now were more stable and costs could be determined and predicted with greater confidence, I would strongly urge the board to adopt a more precise procedure for deriving costs of the mail service and to place great reliance upon the costs so derived."

He agreed with CAA's action in broadening consideration to include several carriers, maintaining that costs could be used to establish service mail rates by shifting attention "from the reasonable costs of individual carriers to the reasonable average costs of the group." Branch also said he was opposed to the 60 cents per ton-mile rate because it "continued in effect a governmental subsidy for a carrier having no 'need' for such subsidy payments and was, therefore, unusual and contrary to the intent of the act."

ACC Topics

Seven prime topics now are under consideration by the Air Coordinating Committee composed of Assistant Secretary of State Clayton, Assistant Secretary of War for Air Lovett, Assistant Secretary of Navy John H. Sullivan, Assistant Secretary of Commerce Burden and E. Welsh Pope, CAB chairman, T. F. Wright, Administrator of Civil Aeronautics, is executive secretary.

The committee, which has just issued a comprehensive report on the demobilization of the aircraft industry (Aviation News, Oct. 20) now has two problems under consideration.

Foreign air rights needed by U. S. flag aviation, inclusion of that Government with, and proposed procedure for action by the Provisional International Civil Aviation Organization; demobilization of the aircraft industry, post-war joint training, post-war security to the general public of technical data concerning wartime aviation experience, commercial possibilities of turbo-jet—no aircraft and post-war policy respecting air telecommunications affecting aviation.

British Air Exports Given New Impetus

Agreement of the British aircraft industry is seeking export markets is further demonstrated in the appointment by the Society of British Aircraft Constructors of W. T. W. Ballantyne as the industry's "trade ambassador" in Latin America.

Ballantyne will make his headquarters in Rio de Janeiro, but has

activity will embrace all of South America. His duties will be the promotion of goodwill for the entire British aircraft industry, and he will set as a clearing point for information. He will not conflict either with the sales representatives of individual manufacturers, nor with the civil air attaché.

Others Seen—While Ballantyne is the first such "ambassador" to be appointed by the society, similar appointments in other parts of the world are expected.

The U. S. aircraft industry, while watching with interest the latest British move in the export market, has no present plans to emulate it. U. S. action to retain a dominant place in the foreign field will take the form of an advertising campaign abroad. Plans for this program are about complete, and are expected to be presented shortly to the board of governors of the Aircraft Industries Association.

As the plan of the British group is admittedly experimental, the U. S. industry is refraining from any similar venture for two main reasons: In the first place, just before the war aircraft manufacturers in this country sold more abroad than the rest of the world combined. They feel that such uncontrolled products are well-known and proven, and that therefore no goodwill program is required.

Competition—Secondly, the organization of the industry in this country, with its much greater emphasis on competition, does not lend itself very well to the innovation of the SRAC. While the companies comprising the British association are competitive, their competition in the export market is subordinate to the common national desire to have a great export trade, perhaps even to the extent of sacrificing individual manufacturer's share in it.



BEECH BOMBER:

New photo of the 32-engine, cannon-armed Beechcraft XA-35, a low level attack bomber powered by two Wright R-2300 engines. The experimental craft was on display at the recent air fair at Wright Field.

Army's All-Radio Weather Unit Studied For New Civil Air Use

Elimination of optical tracking of radionodes provides data up to 60,000-ft despite visibility conditions; highly accurate system is joint project of Signal Corps and Fairweather corporation.

A balloon-borne radionode and a ground receiving set which tracks the balloon and gives the direction and velocity of the wind and other weather data up to 60,000-ft have been developed by the Army Signal Corps in cooperation with Fairweather Television and Radio Corp.

About 360 complete sets, produced since 1943, have performed valuable services for the air forces in combat. Now the Weather Bureau is considering operation of the equipment for the benefit of civil aviation and the many other civilian activities invested in weather forecasting.

Production Progress—Experimental production by the Signal Corps was started several years ago. The earliest direction finder was "nearly the size of a box car," company officials said.

The new radio set, SCR-638, is designed to replace optical tracking of the balloon, which is limited by lack of visibility during rain, fog, darkness. It is nearly impossible to track balloons in the Aleutians, for example. Optical tracking also must involve a rate of ascent, often inaccurately.

Speed and direction of the wind is calculated by the rate of change in elevation angle during flight at one-minute intervals. No other meteorological data is obtained simultaneously.

Continual Contact—The new Fairweather-Signal Corps system employs radio direction finding at the ground receiving station. Course of the radionode balloon can be followed from the time it leaves the ground till it bursts or runs out of range.

Elevation and azimuth angles of a radionode transmitter are obtained from the highly-accurate radio direction finder. Exact ascent rate is determined from pressure data taken and transmitted automatically during flight of the balloon.

A ground receiver actuates a recorder of temperature and humidity of the air surrounding the balloon, and its height. Regardless of visibility, the direction finder

can locate the radionode transmitter at any given moment.

Three Units—The equipment consists of three units: (1) The balloon with radionode and parachute; (2) the SCR-134 direction finder, which has an azimuthal and elevation angle accuracy of about 45 degrees; (3) the radionode recorder unit. There are also power supply, hydrogen generator, and accessories.

Wind direction and velocity forecasts are valuable not only in the performance of air trip schedules, but also for taking advantage of air currents to save fuel.

Company states that if the R-2F's flown from Tokyo had possessed all predetermined information on the winds they might not have missed their objective, Washington, by 540 miles. The armed forces use wind data also in making ballistic corrections in aiming large guns.

The radionode suspended from the balloon emits a radio-frequency of 387 megacycles. The signal is



CARRIER RADAR:

These complex devices are the radar equipment of the superstructure of the 48,000-ton aircraft carrier Franklin D. Roosevelt which was commissioned recently by President Truman.

Hotel Landings

The West's first downtown helicopter landing area will be constructed, says the Hilton Hotel, Los Angeles, Calif., as part of a \$4,250,000 addition for which plans are being drawn and on which construction is expected to start early next year.

The addition, at the year of the present building and encompassed the city's banks, will bring roof area to 330 by 60 feet with the helicopter dock around the edge of the roof. The dock, which will be constructed above the present roof level, a lower in the center of the four-story building. The dock will be equipped as a seasonal tower for the deck United and Western Airlines' offices are on the street level (see p. 10 of the hotel).

of constant amplitude and constant frequency, except for short intervals (.0065 second) of frequency modulation, controlled by an electronic constant thermistor and other factors. The FM channel serves as a reference for the ground of temperature, humidity, and balloon altitude. The DF channel direction finder also operates on the 387 megacycle signal. The radionode emits a radio-frequency of 387 megacycles. The signal is

Aircraft Technique Used In New Production Plan

Northrop Gaines, Inc., a wholly-owned subsidiary of Northrop Aircraft, is using airplane fabricating techniques in constructing hand trucks and industrial wheels of light materials.

First item ready for the market will be industrial wheels, constructed of aluminum with hard rubber tires welded firmly on the wheels by a new process. Although they weigh as little as three pounds, the Northrop Gaines wheels are built to carry 40 percent more weight than any wheel of equivalent size.

Solid Frame—The hand trucks have a frame cast in one solid piece of aluminum. Smallest of these now weighs only 35-lb., yet has been stress-tested under a 3,000-lb. load.

Northrop Gaines, formerly So-Cal Foundry, was the second largest manufacturer of airplane aluminum and castings on the Pacific Coast during the war.

BADWAVE, NCHL: Private Pilot Alvin Fort (center), 14, (center) Billy Brown (right) and (left) John (left) and (right) are of South Dakota, were recently injured when the airplane took off from the runway and crashed into a field on March 5, 1965. The pilot was killed and the other two were injured. The airplane took off from the runway and crashed into a field on March 5, 1965. The pilot was killed and the other two were injured. The airplane took off from the runway and crashed into a field on March 5, 1965. The pilot was killed and the other two were injured.

CARTRIDGE, MO: Private Pilot Alvin Fort (center), 14, (center) Billy Brown (right) and (left) John (left) and (right) are of South Dakota, were recently injured when the airplane took off from the runway and crashed into a field on March 5, 1965. The pilot was killed and the other two were injured. The airplane took off from the runway and crashed into a field on March 5, 1965. The pilot was killed and the other two were injured.

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New Plane Design Tested By Harlow

Unusually good performance and low-gross control characteristics are sought in a new West Coast plane designed by Max B. Harlow of Pasadena, Calif., and now undergoing test flights.

The low-wing monoplane is all-metal, powered with a 230-hp Lycoming engine, and has a gross weight of 2,350-lb. A constant speed propeller is used.

Performance—Harlow reports that initial flight tests show a top speed of 170-mph, cruising speed of 150-mph, landing speed of 30-mph, and a climb of 1,500-ft per min. He says that if flight characteristics meet expectations the prototype will be rebuilt as a four-passenger plane for the personal aircraft market.

The plane's NX-37603 license was issued to Rheem Manufacturing Co., of Los Angeles, which gave financial and production assistance in development of the plane. Harlow said, however, that this does not indicate that Rheem will undertake commercial production of the plane.

The designer, who is assistant professor of aeronautics at Pasadena Junior College, formerly headed Harlow Aircraft Co., and currently is a Rheem consulting engineer. He will be a director of Harlow Aircraft.

Briefing For Private Flying

William T. Piper, *Life* Magazine's reported recently takes to give visitors to the "Piper factory at Lock Haven, Penna., a demonstration of "how handy it is possible to fly a plane and live." The word "handy," Piper says, "ought to be kicked out of the dictionary." And when he takes a guest up for a ride in a Cub, he deliberately slips and skids his turns, "feeling contemptuously at the resultant gyrations" of the bank and turn indicator. "As long as the ball stays in the cockpit, that's all I ask," he says. All of which is part of the 64-year-old manufacturer's way of saying that private flying is made too difficult by instruction, and by complex Federal and state regulations.

WACO SURVEY—Contrary to recent reports, Waco Aircraft Co. has not shelved the idea of a biplane for its post-war plane. Instead, it is now conducting a survey to determine what market there may be for the biplane in the personal plane market, with a strong possibility that the post-war Waco might be a biplane if the market prospects look good enough. With the possible exception of Beech, which may make none of its reverse stagger-wing 6-place biplanes agile in the immediate post-war period, Waco may turn out to be the only personal plane maker still making biplanes.

AIRPORT SERVICE REQUIREMENTS—Minimum requirements for service by airports in Minnesota soon may be a matter of state regulation. The State Aeronautics Department is now considering a recommendation of Commissioner L. L. Schroeder for the following minimum services to be required of each airport which the state licenses for public operation within its boundaries: Aviation fuel supply with octane rating suitable for aircraft used on the field, together with an approved tie-down facilities for at least three times as many planes as are regularly based at the field; approved drinking water and sanitary facilities; adequate supplies of checks and ropes; fire extinguishers at all fuel storage, on flight lines and in hangars; area maps in all airports; telephone for public use; offices or administration building to be located to permit public access without passing through flight lines; posting of all local airport safety regulations.

CHECK BEFORE SOLD—Compulsing to curtail the recent increase in airplane accidents attributed to "hot pilots" returned from first military equipment who ignore the performance limitations of light-planes, the Aero Insurance Underwriters are suggesting a safe rule for operators to verify: "For insurance purposes and for old friends who haven't flown recently: a check flight before sale." The insurance group's recommendation is all returned military pilots that they brush up on their Civil Air Regulations which have been greatly modified recently and ask for a check flight before they resume civilian flying. The insurance group is offering a booklet "Here's How" containing a summary of revised Civil Air Regulations affecting air traffic rules, pilot certificates and general operations, to assist in "refreshing" the returned flyers on laws of the air.

NEW AKRON FIELD—A 300-acre airport for private flyers is being opened by John Chamberlain, president of U. S. Statesware Co., in the western outskirts of Akron, Ohio. Chamberlain's son, J. M. W. Chamberlain, owns and flies three planes, a Cessna, Valtec and Waco, and the father has been an enthusiastic air passenger for years.

GLOBE ENGINEERS—More volume production know-how is expected to be a major contribution of two recent additions to Globe Aircraft Corp., Jack F. Stepp, chief engineer, and John M. Wright, assistant chief engineer, both of whom came to the Ft. Worth company from North American Aviation, Inc. Stepp succeeded R. B. Knox, who has been elevated to vice-president in charge of engineering. The two-place all-metal Globe "Swift" is a production airplane, built with machine tools, and is one of about four personal planes announced thus far which may be expected to lead the field in production volume, provided the demand meets expectations.

—Alexander McFarlane

BACK TO THE BICYCLE SHOP

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Plane Improvement Needs Listed By Mutual Aircraft Conference

Emphasis placed on safety by statement of Chicago parley; design changes seen as means to lower insurance rates and basis for use of personal aircraft as normal travel vehicle.

Greater emphasis on safety factors in design of personal aircraft is urged by the Mutual Aircraft Conference, Chicago, in a recent announcement specifying numerous features of the average personal plane which can be much improved for safety.

Pointing out that the statement is not intended as a criticism of manufacturers, but as an effort to point the way toward greater utility of the private airplane as a normal vehicle of travel, MAC lists its own insurance loss records to show that certain features of present day planes cause accidents or aggravate their causes. It urges the importance of reducing high aviation insurance rates by improving the accident record of personal flying.

Specific features of plane design, where improvement is urged include:

- Cockpit construction.
- Visibility.
- Directional stability on the ground.
- Stall and spin characteristics.
- Propeller accidents.
- Uniform instruments and controls.
- Prevention of carburetor icing, either by approved carburetor de-icing or by fuel injection.
- Accessibility for maintenance to prevent neglect.
- Non-flammable materials.
- Crash-proof fuel tanks.
- High push power, thrust and injection type engines to eliminate a large proportion of aircraft fires.

Recommendations for cockpit construction improvements call for lengthening the cockpit so that pilot and passenger when held by their safety belts can be thrown completely forward without striking the instrument panel, stick or other obstruction. Throttle, brake-handle and other levers or projections should be recessed into panel or floor so as not to cause injury. A further recommendation is to engineer cockpit structure to resist shock from a forward direction. Many airplane fuselages have been "uncharacteristically fragile" even after allowance for weight limitations, MAC asserts.

Use of tricycle landing gear offers improved visibility over conventional landing gear, but increased emphasis is urged on design for full visibility forward while the plane is taxiing, and widest possible visibility in all directions while the plane is in flight.

► **Ground Stability**—The tricycle gear is also preferred for directional stability on the ground, although a steerable tail wheel offers "some help" in the conventional gear. A four-wheel undercarriage is recommended as more stable than any three-wheel arrangement with suggestion that additional research seek to provide a landing gear for lightplanes which will approach the directional stability of the automobile.

The MAC recommendation is to make all planes for sale to the general public spinproof or "spin resistant."

Standards of piloting skill are expected to be lowered as the number of licensed pilots increases. Highly maneuverable "hot" planes, and pilots who can handle them will continue to be needed but the primary demand will be for air transportation with maneuverability secondary if not undesirable.

Further development of the pusher airplane as a safeguard against propeller accidents is preferred over an alternate solution of placing a wing guard around the propeller.



USED PLANES OR CARS:

Both used and new airplanes will be marketed in Cleveland at the Upstart Motor Sales and car lot. The lot, shown above with a Piper Cub across the automobile, is operated by Norman A. Deane and Milton Leiber, partners, who have an arrangement with Herb Tanner, operator of Chagrin Harbor airport, so buyer will be trained to solo, at the airport, without extra charge.

► **Auto Comparisons**—The conference points out that automobiles of today are sufficiently uniform in controls and instruments so that a driver of one make can drive another make with little or no instruction. While it is not likely that airplanes can approach this situation for a number of years, uniformity of instruments and controls which would prevent a pilot from making an error because of different location, should be a design objective.

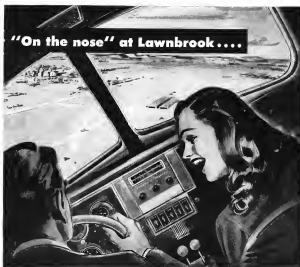
Inspection of controls, drainage of tanks, and all other operations requiring frequent attention should be arranged so they are obvious and easy.

This would be in line with the recent CAA tendency to permit owners to perform certain maintenance functions themselves.

Use of flammable auto-catalytic dopes on fuses is criticized as one of the most serious fire hazards. Increased use of metal for wing and fuselage is desirable, with cellulose acetate dopes or some other non-flammable material recommended for fuses where they are still necessary.

► **Tank Trouble**—Firmly, easily burst gasoline tanks are not necessary on airplanes, as development of bullet resisting tanks for war-planes has proved. Research for development of a crash resistant fuel system is recommended, with preference for an independent fuel tank unit over the type of tank which is integral with the wing, and strong recommendation for locating tanks in wing, and never in fuselage.

Elimination of the carburetor by use of fuel injection engines and raising the flash point of fuel above 100 degrees F will eliminate a large proportion of airplane fires, the MAC statement concludes.



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GENERAL ELECTRIC



ALL-AMERICAN ENSIGN:

First photo of the \$3,000 Ensign, a two-place, all-metal personal plane built by All-American Aircraft, Inc., Long Beach, Calif., shows a West Coast entry which may be a strong bidder as plane makers if its flight tests prove its engineering design promises. Powered with an 85-hp Continental engine, the plane has a 33-in. wingspan, full-view Plexiglas bubble canopy, and features a wing such as "aerodynamic twist" which the manufacturer says affords greater stability at low speed, and superior anti-dive characteristics.

Private Flying Due To Lag in Canada

Limited domestic production, high tariff rates expected to curtail it sharply.

Private flying in Canada is not expected to increase so rapidly as in the United States. A number of factors limit it: a relatively small domestic lightplane production is in prospect, imported plane costs are high, maintenance is considerably more expensive and ground facilities are limited.

At first most lightplanes will have to come from the United States. Before the war only two major Canadian concerns were making this type: de Havilland Aircraft of Canada, at Toronto, and Fleet Aircraft, Fort Erie, Ont. Now a third, Cub Aircraft of Canada, Hamilton, Ont., has entered the field. But none of these three has announced its post-war models and Canadian aviation circles expect no low-cost production for about two years.

Price Differential—A few Canadian operators, on the other hand, hold franchises for the sale of

American-made planes, and American advertising is seen by most Canadians planning to buy their own aircraft. However, there is a 30 percent duty on imported aircraft, an 8 percent sales tax (which applies to Canadian aircraft as well) and the premium differential on the United States dollar now is set at 18 percent.

In addition, operation of private aircraft also is more expensive in Canada, and there are not as many airfields for the private flyer. Parts for aircraft, oil and gasoline all are imported. Since most private planes in Canada would operate mainly in summer with flights for leading on the many lakes in the resort areas and aerodromes, the cost of operation does up.

Airstrip Caring—Within two years, it is expected many municipalities will be building airstrips or small airports. Canadian requirements for private flying become also are expected by that time to have been made somewhat easier, for present pilot requirements and Department of Transport regulations deter private flying, and the industry as well as flying interests in general are endeavoring to have the regulations, many of which date back to 1921, eased to allow more people to take to the air for pleasure flying.

For the present, therefore, Canadian private flying is expected to continue at the pre-war level with most lightplanes being operated by flying clubs and air schools.

Canadian Flight Bans Lifted By Government

All wartime restrictions have now been lifted on civil flying in Canada by Reconstruction Minister C. D. Howe at Ottawa.

Flights over certain military and naval establishments remain prohibited. Foreign non-commercial civil aircraft, mainly United States aircraft, may now be down over Canada or Canadian waters, provided they conform with present requirements and customs and immigration regulations.

Civil Craft—Canadian civil aircraft may be down within or beyond Canada without military and wartime restrictions against carrying cameras or taking aerial photographs have been lifted.

Night flying restrictions imposed during the war have also been cancelled. During the war large areas of both Atlantic and Pacific coasts were closed to civil aircraft.

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THE GERMAN ECONOMIC PEACE

HARD, SOFT...or WORKABLE?

It is not surprising that difficulties are being encountered in spelling out the detailed terms of the German economic settlement.

The problem is increasingly complex. The German economy is more or less inextricably bound up with the economy of continental Europe. Before the war that area—excluding the United Kingdom, Ireland and Russia—accounted for approximately one-fourth of the world's production, and for more than thirty-five per cent of world import and export trade. Germany's production constituted almost one-third of the output of continental Europe. It is obvious that the decisions we make now concerning the future German economy will exert profound influences not only upon the economy of Europe but also upon that of the world. It is clearly not possible to plan for an expanding world economy unless provision is made for Europe generally to share in the development.

Despite the magnitude and complexity of the problems involved, it is crucial that we and our Allies come to swift and decisive agreement. Such agreement is important both to world economic reconstruction, and as a demonstration that those who won the war can reach accord on the terms of world economic rehabilitation.

We shall accomplish little if we continue to debate in terms of objectives. Yet most of the public discussion to date has revolved around whether or not the economic settlement with Germany should be hard or soft. To make progress we must first indicate your objectives. A good program is one that will promote our objectives—a bad program is one that will not.

What Are We Trying To Accomplish?

Upon the economic objectives of the German peace settlement there is little fundamental debate. This is demonstrated by reference to a number of documents of recent release—the United States Directive to General Eisenhower of April 1946, the Report of the Tripartite Conference at Berlin of July, the Report of the American Advisors to the Office of Military Government of September. The latter document stresses fundamental difficulties in developing a practical program for carrying out the objectives of the other two, but it does not question their formulation of aims.

What are the objectives that we are seeking to forward.

1. The disarmament of Germany.
2. The elimination of German industries devoted primarily to armament production.
3. The assumption of responsibilities to compensate those nations which have suffered losses from German aggression.

progress through direct war destruction and through the German policy of continuing industrial expansion to her own use.

How Far Are We Agreed on Procedure?

There is also a wide measure of agreement upon detailed procedure for carrying out these objectives. None, of course, questions the policy of dismantling German arms. Regularly, there is agreement that German industry devoted directly to the production of war equipment should be confiscated or destroyed, and that control measures should be initiated and maintained to prevent her from reconstructing such industries in the future. Since it is not practicable to prevent aircraft production and shipbuilding from being diverted to military use, these industries are included in the armament category. And similar reasoning generally extends the list of prohibited industries to ball bearings and aluminum. There is an additional category of German production which all of the Allied powers agree should be uprooted and permanently barred. It embraces all economic activity which power Germany cultivated on an economic basis through slavery and other protection for the prime purpose of developing a self-sufficient economy to support aggressive war.

The major elements in this category are not difficult to define. A great German industry for the synthetic production of gasoline and other oil products from coal never operated upon an economic basis. The cost of such fuel products to power Germany averaged almost four times what it would have cost her to buy petroleum products on the world market. It is doubtful whether these plants could be operated profitably at a cost much below three times the world market price for competing petroleum products.

A similar situation applies to German synthetic rubber production. In an attempt to free herself at least partially from dependence upon supply lines, she produced synthetic rubber at a cost at least double the world market purchase price. Similarly, air protection or otherwise subordinated a considerable agricultural production, particularly in grains, for which her lands were so ill suited that Germany had to pay for German grain when from three to four times the world market price.

These are merely outstanding examples. The maintenance of such activities in Germany constituted a drain upon the German economy rather than an advantage over those that of preserving a self-sufficiency necessary for war. Hence their elimination is clearly indicated, and generally subscribed to, though the job of defining a complete list is far from easy.

What Is The Area of Dispute?

Unfortunately, this total catalogue of agreed-upon measures is not sufficient to provide either adequate security against a resurgence of German militarism or satisfactory satisfaction to her European neighbors for Germany's ruthless destruction of their industrial plant and equipment. To serve these two ends it is necessary to cut down the margin of German dominance in heavy industry—in steel, in electric power, in machine tools, and other industrial equipment. Unless such steps are taken, Germany will emerge from the war with sufficient industrial power to provide a continuing and perhaps uncontrollable military threat; and we should be perpetuating a dominance that was developed, as a matter of strategy, for beyond the requirements of her civilian domestic markets or the export potentials of normal trade.

German steel capacity was built to a wartime peak of twenty-four million tons a year. Before the war she had monopolized a share of machine tools greater than that of the United States, and her present stock of some four or five million tons of such tools is second only to ours. There is little debate over the necessity and justice of cutting down the margin of German dominance in heavy industry, particularly since it was built to its current levels through aggressive economic warfare to serve as an instrument of actual warfare in retaliation, too, that this sector of the German economy will be found the most useful repatriation in kind for the countries damaged by German aggression.

The question is how much heavy industry and electric power equipment should be taken from Germany and transferred to others. The Russians, having experienced colossal war damage, are demanding very severe sanctions. They talk of reducing postwar German steel capacity to three million tons annually.

The United States inclines to assessments in this field of less extreme dimensions—we have suggested leaving in Germany an annual steel capacity of from seven to ten million tons. We naturally are concerned lest action be taken that will cause a complete breakdown of the German economy. If this should happen we as nations occupational forces then, we should feel responsible for seeing that the Germans within our jurisdiction are provided with at least the means for subsistence. Furthermore, both we and the British know that in the long run our peoples will not support control measures over Germany which go beyond our concepts of reasonable fairness consistent with security requirements.

It is so part of our attitude, as has been suggested by some, to provide for the German economy that will serve as a buffer against Russian expansion. We know, however, that our weakest course would be to commit ourselves now to continuing control measures which our people would later repudiate as falling outside democratic concepts of justice. On this issue we cannot, and should not, compromise.

How Can We Resolve Our Differences?

The best chance for resolving the differences which have appeared between the Russian position on the one hand and the American and the British position on the

other lies in making a sharper distinction than has appeared in current discussion between long-term and short-term control measures. All of us are agreed upon the policy of wiping out German military production and that part of German economic activity which has been run at economic loss to provide for a national self-sufficiency useful only for war purposes. But we are unwilling to enter into long-range commitments for holding down those parts of the German economy that do not constitute a war threat. That would unduly penalize future generations of Germans and drag down the whole economy of continental Europe.

It should be possible to reach agreement that measures for cutting down German heavy industries and power-generating plants are immediate measures, and that no attempt will be made to maintain such controls over an extended period. If part of the German establishment in these fields is transferred to countries whose manufacturing resources have been damaged by German aggression, it can serve the purpose of effecting a reasonable balance without destroying entirely incentives for a new generation of Germans to improve by peaceful methods their status in a peacetime world.

Such a program is consistent with the concept of building a healthy and balanced European economy in which general economic interdependence provides one of the essential safeguards against a resurgence of German militarism. We must still face the problem of agreeing upon how far the non-armament agreements of German industry can be cut back at the present juncture without leading to disastrous breakdown with its resultant chaos. Such definition, though fundamentally difficult, should not be beyond the capacities of the nations whose combined might brought victory, and who have the strongest of incentives for devising a lasting peace.

The key to agreement lies in each of us doing his best to understand the position of the other. Russia must recognize that we cannot get our people to subscribe to the permanent repression of a European economy which would deny to millions of people any hope of normal economic betterment. We should try to understand Russia's conviction that she is entitled ungrudgingly to reimburse herself for her war losses by drawing upon the German industrial establishment that still exists. It will help to resolve our differences if we separate in our thinking those things which require permanent controls from those which are merely temporary expedients.

Neither of us will be forwarding our ultimate economic objectives if we impose controls that blight the development of so large and important a segment of the world as continental Europe. In such a light lies the germ of a Third World War.

James H. McGraw, Jr.

President, McGraw-Hill Publishing Co., Inc.

THIS IS THE LIST OF A SEVENTH

JET PROGRESS

Turbines Developed For AAF Include Two Distinctive Types

Both centrifugal and axial flow models, revealed recently at Wright Field, are likely to power warplanes still on "secret" list; developments in progress for four years.

When the veil of secrecy was removed from some of the American gas turbines for jet propulsion and propeller drive at Wright Field recently it was revealed that developments had been proceeding for over four years on two main types. Both operate on the same fundamental principles but differ in arrangement of components, which include: (1) air intake duct, (2) compressor, (3) combustion chamber, (4) turbine, and (5) exhaust nozzle.

The first type is known as the centrifugal flow turbo jet, and the second as the axial flow turbo jet. This difference is somewhat analogous to that between the radial and in-line types of reciprocating engines; the centrifugal flow type being short and fat, and the axial flow type long and thin.

► Turbine Design—The centrifugal flow unit uses a centrifugal air compressor, the rear casing of which is cast with several symmetrical channels radiating centrifugally outward on all sides. The exact number of channels depends on the number of combustion chambers in the engine. These channels constitute the dif-

fusers, and through them the air is efficiently distributed into the elbows attached to the combustion chambers. The turbo jets based on the one originally designed by RAF Cottes (now Air Commodore) Frank Whittle use a centrifugal air compressor, and its exponents rightly claim, under present development, greater power per pound of engine than in the axial flow type.

► Centrifugal Units—Examples of centrifugal turbo jet engines include the Whittle W1 which powered the Ghost E-28, first British jet fighter to fly; the Rolls Royce Welland and improved Derwent, in the Meteor; the General Electric J-46 (newly designated J-31) in the P-59A and the TR-4, and the J-48 (now the J-50) one of which is in the P-58, two in the newly revealed Bell XP-83, and one in the tail of the Yulise XP-31 (which has a GE "prop-jet" in the nose), and the Bellco-designed de Havilland Goblin, which powers the Vampire. It will be noted that these are all Allied developments, the Germans having followed almost exclusively the axial flow design.



JET-POWERED VAMPIRE:

One of the first photos released of Britain's latest jet-propelled fighter, the de Havilland-designed Vampire (AVIATION, Oct. 22). Twin booms from the wings carry the tail planes which is placed high to escape the blast from the jet nozzles.

Engineer Guide

The Accredited Engineering Catalog, 1945 edition, published by the Institute of the Aeronautical Sciences is now being distributed. It is published as a reference guide for aeronautical engineers and designers and contains specifications and engineering data on a wide variety of aircraft products available for post-war commercial and military airplanes.

The catalog lists the sources of supply of more than 3,000 items manufactured by more than 1,500 companies. The new edition offers technical information about aircraft products ranging from rivets to jet turbine jet engines, the first time jet engine data has appeared in a general catalog. Editor of the catalog is William A. Strider.

► Axial Flow—The cigar-shaped axial flow unit, being smaller in diameter, is aerodynamically cleaner and better suited for installation in very high speed aircraft. The main components of the unit are arranged in line to present a minimum frontal area. The air is forced through in a continuous straight flow. Whereas the compressor and turbine of the centrifugal flow type usually are single-stage, in the axial flow they often are multi-stage. This means two or more sets of blades act on the air in stages. The German BMW 803, Junkers J-34 and Heinkel-Hirth 801 are all of this type. Even before the Whittle developments the British were working on axial flow gas turbines for aircraft. So were American engineers for both Army and Navy, under the direction of the National Advisory Committee for Aeronautics.

► American Activity—In the late 1930's the NACA developed a highly efficient axial flow unit, and in the late spring of 1941 received from retirement Dr. William F. Durand and asked him to head all NACA research projects related to jet propulsion of aircraft. A committee was set up to renew British progress, and to cooperate with Army, Navy and U. S. turbine manufacturers to expedite American developments. It was decided Westinghouse would work with the Navy, and several axial flow units, including the "Yankee" turbo jet, are under development or in operation.

► AAF Developments—GE was to

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WORK ENGINE of the day, Kinner's ruggedly built radial engine is simple of design and easily assembled. High-octane Chevron Aviation Gasoline is specially manufactured and blended to develop full-power efficiency in radial and all other type aircraft engines.



FLATPLANE FLYING in high places is easy when Chevron powers Kinner engines. The high octane quality of Chevron Aviation Gasoline permits fast, sure takeoffs and top power output for takeoffs in limited space.



WIND OR WATER are the same to this Kinner-designed and built craft, adapted for either ocean work. It operates easily where no other vehicle can go. With an over-engineered, overbuilt engine like Chevron Aviation Gasoline being an radial type engine, this radial craft attains a speed no small comparable to its speed in open water. The outstanding performance of Chevron Aviation Gasoline has made it the favorite of many engine builders.

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work with the AAF. Besides the Whittle-type J-34 (J-31) and J-40 (J-33) units developed at the Lyons River plant, two main flow units were developed at Schenectady. The first was the TG-100 (newly designated XT-41) for propeller drive, installed in the Vultee XP-81. Details of this unit recently were released. The other was the TG-188 (now the J-35), which has an 11-stage axial flow compressor and eight combustion chambers.

All five of the AAF-GE units were on display at Wright Field. It may be safely assumed both the GE axial flow "turbo-jet" (XT-41) and the GE axial flow "turbo-jet" (J-38) will power some of the commercial fighters, bombers and long range transports, hosts of which have been appearing in the press.

Avco Income

The Avco Corp. released a net income, after taxes, in the nine months ending Aug. 31, of \$2,180,719 on sales totaling \$35,020,178. The net is a rise of 37 cents per share on \$590.513 shares.

While sales fell considerably below the figure for the same period of 1954, net income rose off slightly. After adjustments for reconstitution, the income for the first nine months of 1954 was \$2,164,071, or 35 cents per share, on adjusted sales of \$34,653,447.

The earnings announced by Avco do not include the equity in the subsidiaries, earnings of Consolidated Valves Aircraft Corp.



DOUGLAS TULSA PLANT:

New air base of the Douglas Aircraft plant and modification center at Tulsa, now listed as surplus.

British Transport Production Rising

Early export sale of Viking was; two prototypes flying, others under way.

With prototypes of two post-war transports now flying, the British aircraft industry is well along on work on three others. Prospects are favorable for early export sale of at least one of the types now being tested, the Victoria Viking.

Two Vikings have been completed and are undergoing trial flights. First deliveries of this British counterpart of the DC-3 (Aviation News, July 8) will go to British Overseas Airways Corp and to the Royal Air Force Transport Command, but it is expected that some will be allocated to the export trade in the not too distant future. Peak production on the Viking, will be reached in autumn, 1944, will be from 25 to 30 monthly.

Exceeds Plan—In its first tests, the Viking bettered speed and fuel consumption estimates by considerable margins. Planned to have cruising speed of 210-mph, it achieves 232-mph at 10,000-ft. with maximum wing machine. Fuel consumption was 91 gallons an hour, against an estimated 106 gallons.

Second British postwar prototype to fly in the Avro Tudor I. Powered by four Merlin engines developing 1,700-hp at takeoff, it is designed solely for North Atlantic operations and has a gross weight of 78,000-lbs.

A large version, the Tudor II, is under construction. It will have

a bigger fuselage, and will be used on Empire routes.

Air Glend—The largest aircraft in Britain's book, the eight-engine, 290,000-lb. Strabane I, is now under way at the Bristol factory, with work of progressing to the fuselage. It has now been decided to use Centaurus engines.

Another type outlined by Lord Brindley's committee, the Brindley II is being built by the Avro speed company under the name of Ambrosia. It will be a two-engine aircraft in the same general category as the U. S. Curtiss-built Commando.

Surplus Aircraft Diesels Up For Competitive Bids

Nearly 1,500 Guiberson radial diesel engines, originally designed for aircraft but used during the war in tanks, are being sold as surplus in a competitive-bid basis by the Reconstruction Finance Corp. Bidding ends Nov. 14.

Of two types, one of 220-hp, the other 345-hp, the engines have never been type certified by CAH for use in aircraft. Both models are air-cooled. Bulk of the engines have been used and require repairs, while 600 are used but are usable without repairs. Repairs and spare parts are available in quantity, RFC states.

Doubtful Future—In view of the doubtful future of diesel engines for aircraft use, RFC has inquired as to other possible utilization, and lists such purposes as oil well drilling, marine engines, power for irrigation, cotton gins, air conditioning, different machines and electricity.



CABIN TEMPERATURE CONTROL

A new electronic system, which controls cabin temperature with positive accuracy, has been applied to both main and combustion gas turbine engines. Three responsive control elements in the system keep the cabin air at the selected temperature by maintaining the heat supply equal to heat losses. Overheating is prevented by automatic control of heat discharge temperature.



ENGINE TEMPERATURE CONTROL

Increased operating safety and longer engine life is assured by automatic engine temperature regulation. The Honeywell control system, which can be applied to turbine engines or turbine systems, maintains cylinder head temperatures at desired accuracy, maximum cylinder head temperatures at low or more engine speeds in a few degrees and at maximum speed. It is made up of its main unit and pressure in the combustion chamber, the temperature sensor element, responds accurately and quickly to temperature changes.



VALVES AND SWITCHES

Many aircraft control problems require only the use of electric valves or pressure-actuated switches. Honeywell valves and switches are specially designed for maximum dependability and maximum weight. Typical uses are the Avroco W wing leg actuator, which would be shown when the pressure in a pressure line drops below a safe amount, and the two selected valves in a heat exchanger.

Honeywell Controls

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TODAY we are going with pride to the creative engineering by Honeywell which helped produce Allied air supremacy and resulted in decisive victory.

Tomorrow, this same creative engineering will help to improve performance of all types of aircraft. Even now it is helping to solve dangers and uncertainties with which all problems. The Honeywell way will solve them.

Our program includes a complete flight research department, test records, thousands of dollars worth of testing equipment. In addition, varied application engineers with broad experience in the use of aeronautical and industrial controls, will collaborate with aircraft manufacturers and reduce to development the most practical equipment for each specific problem. Their work includes consulting services and flight testing at the customer's plant. These men can help you in the application of Honeywell equipment to your aircraft problems. Write to us for literature. Honeywell Corporation, 1941 Fourth Ave. S., Minneapolis 8, Minn.

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Electronic Gages Set For Airlines

American Airlines has contracted to equip each of fifty Douglas C-54's recently assigned to the airline, with Sirmunda Pacific Fuel Gages, the first electronic fuel gage to be used on commercial transport planes in this country.

W. H. Bryant, president of Sirmunda Aerocommunications, Inc., made the announcement and also said that Douglas is specifying the same gage on the DC-4's now being built for delivery to American and United Airlines.

► **Safety Aid**—He listed two important advantages which he said would result from the installation of the gage, first, the safety factor, pointing out that the mechanical type of fuel gaging is not always satisfactory. The Pacific Gage, he said, is accurate to within three percent and is unaffected by changes in flight altitude or temperatures.

Second, he said, is the increase in payload which the gage permits, and added that "because of the unreliability of the previous methods of fuel gaging, the Civil Aeronautics Authority requires all commercial transport planes to carry excess fuel merely as a safety factor. The Pacific Gage will eliminate this redundancy making it possible to increase the plane's payload by an equivalent amount."



Electronic Fuel Gages: One of the first wartime developments in servomechanism electronics to be turned to commercial purposes is this fuel gage manufactured by Sirmunda Aerocommunications. It consists of the three parts shown, tank unit, or condenser, on the left, the power unit which contains the electric components, and the conventional cockpit indicator.

The gage has been used on more than 30 types of combat aircraft. Its basic principle makes use of a change of electrical capacity of a condenser when the condenser medium changes from liquid to air. These changes are recorded on a conventional cockpit dial, the readings usually being in terms of pounds.

New Prop Design Tested By Hamilton

Development of a new hollow-steel propeller blade by Hamilton Standard Division of United Aircraft has been announced by Sidney A. Stewart, general manager, who said he believed it to be the lightest in the world for propellers of more than 13-ft. diameter.

He added that while the new blade is not in wide service development testing and flight experience have established the integrity of the design. The production blades have passed Army and Navy type tests and models are employed on six experimental planes under development for the armed services.

► **New Methods**—The blade, designed for use with new versions of the Hydromatic propeller and the Super-Hydromatic propeller, marks a departure from customary construction and materials methods followed by Hamilton Standard for the past 15 years. All previous large-scale production pro-

pellers of this company used the duralumin blade.

The company said the decision to turn to hollow-steel blades was made several years ago when it became evident that propellers would continue to increase in size and weight. It was also determined at that time that the duralumin blade, although lighter and more advantageous for use in propellers under 13-ft., loses its weight superiority when that figure is passed.

Hamilton Standard said that blade design studies had shown that for diameters exceeding 13 to 15 ft., a hollow construction should be employed to achieve the lightest weight and that for smaller sizes, the fabrication requirements of hollow blades result in no advantage, and even a disadvantage in some cases.

IAS San Diego Unit To Build Headquarters

Construction of a \$105,000 building for the San Diego section of the Institute of the Aeronautical Sciences will start soon after the first of the year.

Funds for the project, which will be built on Lindbergh Field were contributed by Consolidated Value, Rohr Aircraft, Solar Aircraft, Ryan Aeronautical and Langley Corp.

The structure will be adjacent to the new proposed airline terminal building and the San Diego group, whose membership of 200 is the largest in the country, will use it as headquarters. A large auditorium, stage facilities, dining room, lounge, office and conference rooms will be included. Financed by a \$10,000 gift from Maj. R. H. Fleet, an aeronautical library will also be provided.

SKF Bearing Book

A textbook on bearings is being published by SKF manufacturers. A book of 274 pages, it is entitled *Ball and Roller Bearing Engineering*, and was written by Dr. Arvid Palmgren, who has been active in the field for 30 years and is winner of numerous awards.

The book is designed to serve as a fundamental text on all phases of bearing application to industry, and contains about 900 drawings and tables. First copies are being distributed free by SKF to heads of corporations, technical schools and colleges and libraries. Later editions will be sold at cost.

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PERSONNEL

Col. Chrisp, Comdr. Gay Return To CAB Posts

Among armed service personnel returning to posts at the Civil Aeronautics Board are Robert W. Chrisp, who was a colonel in the Air Corps and is now an attorney in the office of the general counsel, a position he held before going on military leave. Commander George Gay has returned to civil life as a senior air safety investigator in the CAB's Safety Bureau. He served as commanding officer of marine aircraft service until No. 11 during his last assignment in the Navy.

H. C. Brown has been appointed director of training for Braniff Airways, to direct the extensive plans for training of returning veterans. For the past two and a half years Brown was supervisor of training at North American Aviation, Dallas.

C. O. Turner, photo, becomes general manager of the new Airplane



world. Newman L. Smith becomes controller and assistant general manager of the new company. Turner has been employed by Lockheed for three years in subcontracting and aircraft production departments. Airgroup will have offices in Baltimore.

Fred L. Clark has been named assistant agency manager for TACA Airways Agency, Inc. Clark will have charge of the accounting staff and general office management in the New York office of the agency. Before joining TACA he was an administrative officer in the Army Air Forces at Wright Field.

F. C. McMillen, in charge of aviation radio sales for Western Electric Co., Inc. has been appointed chairman of the Aviation Section of the Radio Manufacturers Association's Transmittal Division. He succeeds J. W. Harwood of Bendix Radio.

Cliff Sharpe, formerly works manager, Port Worth division of Consolidated Vultee Aircraft Corp., has been appointed assistant to the general manager of Hughes Aircraft Co.

Lieut. Col. Harold P. Little (photo), United Air Lines pilot on military



leave, has been appointed commanding officer of the 20th Ferrying Group of the ATC. A pilot in aviation, Colonel Little was in the Air Corps at the last World War and flew the early air mail routes for the Post Office department. He formerly was with National Air Transport, predecessor to United. He delivered land-plane aircraft to Russia for the ATC.

Col. Richard E. Fell, commanding officer at the Washington National Airport Army Air Base, has joined PCA as an executive assistant. He will be replaced at the air base by Col. Chester E. McCarty, who recently returned from overseas.

Gleason Markel will set as director, airports and buildings for American Airlines in the new airports and buildings section of the Engineering Department. Elmer Stinson has been appointed technical director, airports and buildings, and will report to Markel who in turn reports directly to the vice-president in charge of engineering.

Larry A. Robbins has been named superintendent of Standard Practice Manuals with TACA Airways Agency, Inc. He has been assistant accountant and analyst with Transcontinental and Western Air, Inc., and has also been with Consolidated Vultee Aircraft Co.

Donna H. Skaggs, a Navy veteran, has been named executive of the Hollywood headquarters of Western Air Lines.

John S. White (photo) has been named personnel



director of Chicago and Southern Air Lines, and Southern Air Lines, Inc. He is a former U.S. Army Air Corps pilot. He is now a member of the Chicago Aircraft Corp. of Amityville, N. Y., where he has been serving as personnel manager. Previously, White was manager of the industrial relations section of the Philadelphia Chamber of Commerce.

HEADS CAA WITH REGION:

Walter P. Platt becomes Administrator of the Eighth Region (Alaska) of the Civil Aeronautics Administration replacing Marshall C. Nagpe, who left the CAA to become president of Alaska Airlines Fleet, who began work with the CAA in 1936, is responsible for directing much of the wartime airway and airport construction in Alaska during the war.



Frank A. Sanderling (photo) has been named advertising and sales promotion manager at Rolo Aircraft Corp., College Point, L. I. In addition to directing sales promotional activity for Rolo airplane fleet, Sanderling will handle advertising and promotional work on Rolo's line of non-pressurized equipment, to be announced. Prior to the war he was advertising and sales promotion manager for Taylorcraft Aviation Corp. He is an expert in the production of visual aid training devices.

Jack Cornelius, a veteran of the American Volunteer Group, has been elected vice-president in charge of maintenance of the National Skyway Freight Corporation, charter air freight line recently organized by former Flying Tigers. A few months ago, Cornelius became senior engineer at LaGuardia Field for American Export Airlines. He returned to join National Skyway Freight Corp.

T. F. Wright, Civil Aeronautics Administrator, has been elected vice-chairman of the National Advisory Committee for Aeronautics. Dr. J. C. Hunsaker was re-elected chairman and also chairman of the executive committee.



AS WESTERN AS *Big Horn Sheep!*

From the Canadian Rockies to the mountains of old Mexico the BIG HORN SHEEP roam the crags above us. The massive horns that curl in more than a complete circle above its head, give it its name.

From the Pacific to the Rockies, up both sides of this mountain chain into Canada, Western Air Lines only in flying over 4200 miles of airway, bringing air transportation to 31 communities, 7 states and the Province of Alberta. Since 1935 when it earned the first "Go-joy" passengers on the U.S. on scheduled flights, Western Air has contributed to the development of the West. As applications for new routes are approved and as new, larger, faster planes are delivered, Western Air will broaden its service to more of the West.



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For years, Sensenich has been standard equipment on aircraft powered under 250 HP made by leading aircraft manufacturers.*

Sensenich is stocked and sold by all of the country's leading distributors who, in turn, supply hundreds of aircraft service operators and other retail suppliers.

Whether you want airports or schools, military or civilians, look at the flight line. You'll find Sensenich right at the nose, rise three out of ten.

When you leaf through the pages of your favorite aviation journals and directories, note the propellers on the ships shown in the editorial pages as well as in the advertisements. More often than not, if the propeller is made of wood, you can use a tiny trade mark shaped like this:

That is the sign of Sensenich... the sign of a good propeller... a sign you can trust. Sensenich Brothers, Adjacent to Municipal Airport, Lancaster, Pa.; West Coast Branch, Glendale, Calif.

*Piper, Aeromex, Taylorcraft, Fairchild, Cessna, Beech, Ryan, Evektor, Grumman, Fairchild, Howard, Luscombe, Mayers, MacCready, Parler/Fairchild, Beech, Ford, Boeing.

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FREE SERVICE Repair service now available on any type wood propeller. Prompt service. Address: Sensenich Brothers, 1900 19th, Lancaster, Pa., or Glendale, Calif.

Aircraft Financial Trend Study Shows Dividends Down In '45

Present income reports begin to reflect reduced levels of operation; AVIATION News analysis projects aggregate stockholder expectancy; post-war reserve charges below last years.

Aircraft dividends to stockholders will aggregate less for 1945 than for the previous year. This is disclosed in an analysis, based on recent trends, compiled by AVIATION News.

With widespread military contract cancellations, many aircraft companies have developed conservative tendencies and are inclined to husband all available cash resources.

Current earnings appearing for a few of the aircraft builders show slight declines to comparable periods of a year ago. It is noteworthy, however, that in most instances, current earnings have not been subjected to the extraordinary charges to build post-war reserves which accompanied last year's reports.

In other words, on a comparative basis, present income reports are beginning to reflect a sharply reduced level of operations.

Recently, Boeing Aircraft Company decided not to pay a dividend at this time. During 1944, a total of \$5.00 per share was paid. In April 1945, \$1.00 per share was paid. This was a surprise to the market, as the price of the stock declined on this non-dividend action. Similarly, Cessna, which paid 40 cents per share in 1944, is only paying 25 cents this year.

DeSloge maintained its constant dividend record by again declaring \$5.00 per share, payable to stockholders on Nov. 24. Regardless of its high rate of earnings, DeSloge has paid this uniform \$5.00 annually since 1940.

Beil also came through with its usual \$1.00 cash declaration, payable to stockholders at record on Jan. 24, 1946. In addition, the company declared a 10 percent stock dividend. However, the latter declaration does not give the stockholders anything new which they did not already have.

The accompanying table shows the 1944 dividend and earnings record for representative aircraft companies. Further, payments made thus far in 1945 are also shown.

AVIATION News, in surveying current earnings has attempted to estimate forthcoming dividend action for various companies and advances the following projections:

Beech Aircraft paid \$1.00 per share on Oct. 26, 1944, but has not yet acted this year. It is believed that at least 50 cents per share may be paid during 1945.

Boeing is estimated to have earned \$1.60 per share for the year ended Sept. 30, 1945, compared to \$7.32 for the previous fiscal period. Nevertheless, it is believed that the quarterly rate of 75 cents per share will be maintained.

Cessna has continued on a 50 cents quarterly basis and it is believed will continue that policy for the near term at least.

Aviation Corp., which owns about 36 percent of Convair, could use the dividend income.

Carver-Wright which paid 75 cents per share on the common last year, will probably pay at least 50 cents this time.

Grumman has already declared

ON EARNINGS AND DIVIDENDS RECORD REPRESENTATIVE AIRCRAFT COMPANIES (For Common Stock)

Company	1944 Earnings	1945 Earnings	1944 Dividends Paid	1945 Dividends Declared
Beech	20.00	10.00	1.00	
Boeing	7.32	1.60	1.00	
Cessna	1.10	1.00	1.00	
Carver-Wright	1.00	1.00	1.00	
DeSloge	25.00	25.00	5.00	
Grumman	1.00	1.00	1.00	
Howard	1.00	1.00	1.00	
Luscombe	1.00	1.00	1.00	
MacCready	1.00	1.00	1.00	
Mayers	1.00	1.00	1.00	
Parler/Fairchild	1.00	1.00	1.00	
Piper	1.00	1.00	1.00	
Ryan	1.00	1.00	1.00	
Taylorcraft	1.00	1.00	1.00	
West Coast	1.00	1.00	1.00	
Wright	1.00	1.00	1.00	

See AVIATION News special report "The 1945 Aircraft Industry" for a complete list of companies and their earnings and dividends.

its \$1.50 payment for 1944, the same as for last year, but some sources estimate that 1944 will see this rate increased in view of the company's over-all excellent outlook.

Lockheed has been paying 50 cents quarterly and may be expected to continue at least for the remainder of this year.

Morris, following a \$3.00 annual rate, has paid \$1.50 earlier this year and is expected to repeat this payment for 1945.

North American Aviation will, for this year, most likely pay less than the \$1.25 per share paid during 1944.

Republic Aviation will pay at least another 35 cents per share, bringing its payments to 16 cents—the same as for 1944.

Spray, which has always followed a conservative dividend policy, will most likely pay another \$1.00 this year for a total of \$2.00.

United Aircraft paid only \$1.00 earlier this year and is expected to equal this amount for the second half. Last year, the company paid \$1.00 per share.

While post-war dividends are usually expected as common corporate custom, the aircraft group may make special disbursements at the turn of the year after the industry outlook is cleared.

It is likely that special liquidation dividends may be declared as operations are trimmed to present day requirements and the need for extensive working capital will be diminished.

Convair, Fairchild File SEC Earnings Reports

Securities and Exchange Commission reports have listed recent earnings of Generalized Wholes Aircraft Corp. and Fairchild Convair and Instrument Corp.

Convair, during the three months ended Aug. 31, reported total sales of \$90,763,000 of which only \$174,000 represented either their war contract output. On June 1, the company listed \$674,300,000 worth of unfilled war contracts and by Aug. 31 had reduced this amount to \$124,000,000.

For the Fairchild firm, SEC indicates, during the six months ended June 30, amounting to \$11,228,000 of which \$11,057,000 were estimated to be war contract receipts. Unfilled war orders as of June 1 totalled \$21,000,000 but had risen to \$28,042,000 by June 30.



If the "Age of Flight—1940 Edition"—the complete history of Aviation—were ever written, the name Shell would appear continuously as a leader in Aviation Fuel development.

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A NEW PAGE is turned—and the same Shell Research that first supplied our military aviation with the "muskies" of 100-octane in commercial quantities, today is concentrated on the development of finer Shell Aviation products for America's peacetime planes.

Now that the black skies of war have cleared away once and for all—and we can at last go "all out" to develop peacetime aviation—Shell refineries and laboratories will continue to develop high-quality aviation products.

You may expect to see more achievements like these already-famous Shell "firsts".

First to supply the Army with 100-octane fuel in commercial quantities...

First in U. S. to install and operate a commercial plant for Benzene

Isomerization, a process which made possible new increases in volume of 100-octane...

First to establish a commercial plant using sulphuric acid alkylations—a new process which multiplied 100-octane production tenfold...

You will find this trend of advanced thinking—backed by the full force of Shell Research facilities—reflected in the quality of AeroShell lubricating oils and greases, and Shell Aviation Fuels.



SPECIAL AIR SERVICES

CHARTER NON-SCHEDULED INTRASTATE

Steamship Firm Plans Intrastate Airline, Outside Control of CAB

Waterman, which first applied for intrastate air services in 1940, schedules Mobile-Muscle Shoals flights beginning Nov. 15, using surplus Lockheed.

Augmenting its efforts of the past five years to enter the air transportation field, a steamship company expects to start an intrastate airline outside the jurisdiction of the Civil Aeronautics Board and the Civil Aeronautics Act.

Waterman Airlines, Inc., a wholly-owned subsidiary of Waterman Steamship Corp., plans to begin coast flights in Alabama, Nov. 15, adding passenger service shortly thereafter. State Public Service Commission is granting a certificate of public convenience and necessity.

Passenger Base.—A company spokesman in Mobile, headquarters of the airline, said passengers will be carried as soon as three surplus Lockheed 12-passenger planes are delivered and converted.

Under initial schedule, a plane will leave Mobile in the early morning, stopping at Dothan, Montgomery, Birmingham, Nashville, and Muscle Shoals. Return trip will start about noon, over the same route. Flap time each way will be about 2 hours, 45 minutes.

This schedule was arranged to enable South Alabama businessmen to transmit business updates and return the same day. A trade survey will be made soon to determine whether additional cities should be added to the pioneer route.

Main Base.—Mobile's Bates Field will be site of the company's main operations and maintenance base. Sales offices will be established in major cities. Representatives will be on duty at all stops.

Waterman Airlines first filed an application with CAB in 1940, requesting New Orleans-San Juan service via Tampa and Miami, for mail and passengers. In 1941 the requests for mail, and to serve

Floating 'Airports'

A system of floating "airports" throughout the North and South Atlantic coast has been proposed by a Canadian bush operator who would install portable hangars on 25 to 35 lakes to permit landing biplanes in densely wooded areas for hunting and fishing.

A veteran of both world wars, J. M. Gray of Air Service Plans, Ltd., Orillia, Ont., has also applied to Canadian Air Transport Board for a license permitting scheduled service from Toronto waterfront to Orillia, two hours' flight, using Stinson Vengeance biplanes, charging \$15 one way, \$30 round trip. From Orillia passengers would be taken in smaller four-place float planes on non-scheduled charter basis to the postulated lakes.

Gray also wishes a complete holiday service, with games, boats, lodges, and other accommodations. He would employ only air force veterans.

ATS Members Voting Against U. S. Rule

Association to file brief to end argument on examiners report opposing CAB regulations.

Members of Aeronautical Training Society, leading aircraft service operators, dealers and distributors, are voting almost 100 percent against regulation by the Civil Aeronautics Board of non-scheduled aviation. They propose that the association file a brief to this effect when oral arguments are heard on an examiner's report Nov. 25.

"Up to now the vote shows strongly that we members want the door of aviation opportunity left open not alone for independent operators like themselves but for returning AAF veterans," Wayne Washburn, ATS secretary, said.

Proposed.—Under recommendations of the examiners, report on the subject, non-scheduled operators would be restricted to service from fixed bases, and trips limited to 10 trips a month into places having "unsuitably direct" service by scheduled, scheduled carriers. Non-scheduled operators declare this would kill the hot taxi and charter business, and wipe out and out of thousands of jobs.

Convair Officials Form Charter Line

A new San Diego airplane charter and sales company has been organized by a group of present and former Consolidated Valley Aircraft Corp. officials.

The firm, Nelson-Kelley Co., is headed by A. S. Nelson, former Convair chief of material, and Douglas Kelley, former director of flight.

Maryland Line Adding Cities; Increasing Fleet to 7 Planes

Company which started service in July between Washington and Delaware resort, plans equipment and facilities expansion; guide for similar ventures seen.

By BLAINE STUBBLEFIELD

Application has been filed with CAA by Maryland Airlines, Inc., for an interstate 561-mile scheduled airline system, centering in air-minded Maryland. It would cut Washington, D. C., train time to ocean beaches from 6 hours and 10 minutes to 45 minutes, at about the same fare.

Maryland's division by Chesapeake Bay, and its residents, make it a special setup for time-saving by airplanes over ferry boats and crooked bridge routes. These interstate air operations have been approved by the Maryland Public Service Commission (Aviation News, Oct. 22).

Guest Demand—But officials of Maryland Airlines felt there was urgent demand last summer for service between Wilmington and Rehoboth, Del., where air time saving over surface transport is only normal. The company conducts its feeder operations, many on the basis of tested demand, in another strong argument in support of Representative Jennings Randolph's resolution pending in Congress. That the government support the extension of the coun-

try's air system to small communities.

Maryland Airlines has been operating interstate charter service between Washington National Airport and Rehoboth since July 20, with three Cessna T-50's, or Army UC-78's. Company expects to start charter operations between Baltimore and Salisbury, connecting with Washington at Eastern, within two or three weeks, regardless of future action on its interstate application, which includes present routes and those shown on the accompanying map. Advertising of regular interstate charter runs is not permitted, but observers say the company has been operating virtually on schedule.

During a 30-day period last summer the company carried 738 passengers Washington to Rehoboth, and 741 the other way, operating 7 days a week, 8 trips per day, 8 passengers per trip. Trips per day were later cut to 3.

Leading—The stop at Eastern was begun Sept. 26, when Navy released its field there.

The Cessna carry 3 persons in

the back seat and 2 pilots in front. On this operation, one pilot flies the plane and the fourth passenger rides the co-pilot seat. Forty pounds of baggage are allowed per passenger.

Company expects its average passenger fare at about 3 cents per mile. It has not enough data as yet to determine exact operating costs, but is convinced they are less than revenue. Officials of the company told Aviation News they believe their proposed certificated system could operate profitably without the mail or cargo which it will carry if certificated. During the summer season the present system ran at about 106 percent load factor, and since then the factor has been about 65 percent.

Maryland Airlines converted the first surplus UC-78 that was released, paring off all the problems involved, including major structural, electrical and other changes. Total cost per airplane, including decorating, painting, insignia, and certification, is about \$4,500. They feel that their groundwork on the conversion will be valuable to other prospective users of this plane, of which they say about 1,500 will be available.

Pilot Question—The question of operation by one pilot on instrument and night flight is up for consideration by CAA-CAB in several different cases. A decision for two pilots probably would make the operation of this new airplane prohibitive on scheduled routes. The company believes that one pilot provides adequate safety, and is confident the government will so rule.

Maryland Airlines officials are keenly aware of the fact that interstate, uncertificated airlines will have substantial advantages over certificated operations, because of federal safety and economic regulations imposed upon the latter. They call attention to a Supreme Court decision to the effect that there is no such thing as interstate air traffic, and state that in their opinion authorization of air service by state commissions eventually will be done away with.

The company has made additional purchases and will have 7 planes in all: 6 in operation and 1 standby. Capitalization is \$106,000 paid in. Headquarters is Baltimore, Md., where \$59,166 will be spent for hangars, \$23,000 for administration buildings and \$23,000 for shops. A "model aviation lubrication station" will be established there in cooperation with Glaco



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PICAO Research Coordinating Role Gains Impetus At Parley

Membership seen in agreement that organization should not undertake independent projects but relies need of agency to bind together international efforts. Burden visits session.

Feasibility that the Provisional International Civil Aviation Organization will assume the role of a world-wide coordinating agency for technical research in aviation problems was forewarned at the last week's meeting of PICAO's Air Navigation Committee in Montreal.

The question was brought to the attention of the committee by the secretariat, with the further suggestion that the organization itself might arrange in some research work which would not involve extensive laboratory and other facilities.

► No Research—Committee members, however, generally agreed with Sir Frederick Bowhill, United Kingdom representative, that it would be impossible for the organization to carry on research in addition to its other functions.

At the same time, they agreed that PICAO should act as a coordinating agency to prevent the wasteful effort of parallel projects which might have been scheduled by different member-states Un-

der the Committee's recommendation PICAO would also bring forward specific problems to the nations best qualified to undertake the research.

Now firmly established as a working international organization, PICAO was visited by William A. M. Burden, Assistant Secretary of Commerce for Air.

► Exaggeration—Discussing some of the problems of international air transport at a press conference, Burden said he thought economic difficulties embodied in the controversial "third freedom" question were exaggerated.

"Many of the economic problems we worried about at Chicago," he said, "don't seem to arise in actual practice."

PICAO's interim council has confirmed a few senior appointments to the secretariat. Among them is that of E. R. Martin, a specialist on international aviation in the Bureau of the Budget, who was appointed liaison officer in the office of the PICAO president.

PICAO 'Climate'

Climate may be an important factor in determining where the Interim Assembly of the Provisional International Civil Aviation Organization will meet early next year, judging from discussions at the PICAO Interim Council meeting at Montreal.

The assembly will hold its first meeting probably in April. Apparently, Montreal will not be the safe, lone member of the Canadian city as the place for the assembly was the Frederick Bowhill, U. S. representative, who mentioned it would be located to meet where the PICAO secretariat is located.

► Inquiry was made of Dr. Cesar Grillo, Brazilian delegate, about Rio de Janeiro, and a formal invitation came from Mohamed Boudjia, Bey of Egypt to convene the assembly in Cairo, where the International Air Transport Association is to meet in October, 1948.

Essair Operation Revision Requested

Essair, Inc., has asked the Civil Aeronautics Board for permission to run turn-around flights from Houston to Austin on its intrastate Texas route.

The line's certificate requires that each point on its route be served on every schedule, but its latest experience has shown that Houston-Austin traffic is the heaviest.

► Travel Tendency—Of the 461 revenue passengers carried during the first 18 days of September, only 27 went straight through between the two terminals. But 106 traveled between Houston and Austin.

The line began operating AGE 1, overnight cargo and mail, from Aug. 1 to Aug. 22 all schedules were completed. Passenger service was inaugurated Aug. 25 with two schedules daily. These were raised to four Aug. 31. The company's Lockheed Electra has been running with a 35 to 65 percent load factor.

During August, 7,753-lb. of mail were carried from Amarillo to Houston and 1,696 in the other direction. Postage has increased, and lately the line has been leaving Houston with about 300-lb. of mail per day.

TWA Survey Trip Covers Wide Area

Fourteen thousand mile flight over European areas occurs after modifying many points still lacking on treaty agreement.

Transcontinental & Western Air's survey flight of its European routes returned to Washington a few days ago after stopping at 19 foreign ports, many of them not yet covered by agreement and some not on TWA's certificated routes.

The flight left Washington with 15 observers and crew members, Sept. 30, going on the subcontinent trip to Gander, Newfoundland; Goose Bay, Labrador; Foyens and Dublin, Ireland; Paris; Geneva; Madrid; Rome and Naples, Athens, and Cairo.

► Flight Log—The C-54E returned to Washington after more than 14,000 miles of flying, Oct. 20, from Cairo via Beirut and Tripoli, Libya; Tunis, Tunisia; Algiers, Algeria; Casablanca, Morocco; Lisbon, Portugal; Santa Maria, Azores, and Stephenville, Newfoundland.

Of these, Newfoundland, Foyens, Paris, Switzerland, Madrid, Rome, Athens, Cairo, Beirut, Tripoli, Tunis, Algiers and Lisbon are on the Civil Aeronautics Board's initial service pattern for TWA's overseas operation. Goose Bay, Dublin, Naples, and Stephenville are overseas. Casablanca and the Azores are not included in TWA's certificate, which does, however, permit it to operate eastward from Cairo to Benghazi, Libya, flights over this part of the route will be made later.

Of the route surveyed, points on the northern leg are most likely to receive the first passenger service when TWA begins its commercial operation, probably next before the end of the month. State Department is working to effect air agreement with other airlines on the route.

► Treaty Hopes—Among the latter is France, with which officials hope an agreement can be concluded soon. There is also hope that some agreement can be reached with Greece and Egypt whereby landings may be made at Athens and Heliopolis with the French or international, traffic, although possibly on an interim basis. Arrangements to be made with Portugal will govern landings at Lisbon and probably the Azores.



TWA Radio Survey Flight: Part of the crew on the TWA European survey flight are shown after their return to Washington, National Airport, puzzling over a passport problem. Left to right they are F. R. Henderson, first officer; Clark Tausner, Air Transport Command flight superintendent for TWA's Inter-Casablanca-Danvers (not on the survey flight); J. J. Koenigshaus, chief flight radio operator; W. G. Gelson, flight captain; General Metzger, survey secretary, and Thomas M. Sullivan, TWA airport engineer.

Similarly, the situation at Tunis and Algiers likely will be affected by arrangements with France. Libya is under British military control. Assurances have been given that a U. S. flag line can operate through Libya, but traffic considerations have yet to be resolved. Data obtained by TWA on the survey flight has been sent to its Kansas City headquarters for study. The men who compiled it are:

Guy L. Arnold, chief navigator; R. C. Ayers, chief operations engineer; A. A. Skellie, chief flight engineer; Walden G. Gelson, supervisor of operations and captain on the flight; F. R. Henderson, special assistant and first officer; J. J. Koenigshaus, chief flight radio operator; General Metzger, survey secretary; Alvin D. Niermeyer, Civil Aeronautics Administration; J. Harold Poole, maintenance and equipment; Peter H. Rudolph, technical executive; Ray Skars, script surveyor; William J. Sumita, photographer; T. M. Sullivan, airport engineer; and Earl Taylor, C-54 equipment engineer.

Avco AA Control Ended By Order

The Civil Aeronautics Board has directed Aviation Corp. to direct itself to control of American Airlines by reducing its voting stock in AA to not more than 4 percent of such stock outstanding.

In an order issued last week, the board made fresh considerations forth in its show cause order (Aviation News, Oct. 15), finding further that Avco "has not shown any cause why a final order . . . should not now be issued." Under terms of the order, Avco must file monthly reports, through August 1948, with CAB on divestiture status and, within 10 months, such additional evidence as the board may require to show compliance. Divestment must be accomplished by July 31 of next year.

► Case Ends—Last week's order closed CAB's investigation begun Sept. 19 to determine whether Avco's holding of 257,536 shares of AA stock constituted control.



EASTERN'S LAST MILITARY FLIGHT

Flight and ground personnel from Caribbean and South Atlantic bases of Eastern Air Lines' Military Transport Division, an Air Transport Command operation, stream of the C-60 that ended EAL's last military flight, at Miami Oct. 15. Fifteen thousand service men were returned to the U. S. from South American bases during the last four months of Eastern's three and one-half year ATC operation.

IATA Rate Conference Procedure Strongly Criticized By Pan Am

Line was increased fares as outcome but government officials give informal approval to system set up at Montreal meeting.

The rate conference procedure developed by the International Air Transport Association at its first annual meeting in Montreal has received informal approval of government officials connected with aviation policy but strong criticism from Pan American Airways.

While the work of IATA was said by officials not to be a proper subject for public comment, it was recalled that the conference procedure has been favored consistently by this government in preference to rate-fixing by any international governmental organization. On this basis persons in the government unofficially lauded the IATA arrangement.

Criticism:—It was predicted in Montreal that early acceleration of worldwide air transport would result from the IATA meeting and operators expressed the opinion that the traffic conference would promote efficient service at reasonable rates.

But, despite its representation at the IATA meeting where the conference was approved unanimously, Pan Am contended before the Civil Aeronautics Board last week that high fares would result and left the inference that it would not participate.

Giving his oral argument in the Pacific case, Pan Am attorney Henry J. Friendly predicted establishment of traffic quotas and an inference to United States carriers and "Some of those who were most enthusiastic for competition have now turned their enthusiasm to the use of the conference procedure for the purpose of holding fares up."

Not specifically mentioning IATA, he added, "If we are going to have quotas and conferences, competitive American-flag service abroad means all the waste and inefficiency associated with duplication of services and facilities with none of the advantages which competition is supposed to bring."

Early Action:—It was predicted meanwhile, that the traffic conference, especially that for the North Atlantic, would be called soon so that the multitude of prob-

lems confronting airline operators in green areas and along various routes may be solved and adjustments worked out. There still was hope in some quarters that the problem created by Pan Am's rate reduction before New York and Washington could be settled amicably.

"I have never left a meeting without more hope than I do this one," said IATA President H. E. Symington, in response to which John C. Cooper of Pan Am and IATA's success depended in large measure upon Symington's "advice, courage and far-sighted judgment."

One of the next steps IATA is expected to take, through its executive committee of which Cooper is chairman, is to make representations to the Provisional International Civil Aviation Organization regarding removal or relaxation of immigration, customs and other governmentally restrictions "which are prejudicial to rapid and efficient air transportation." A resolution directing this action, presented by John E. Slater of American Export Airlines, was unanimously adopted at the Montreal meeting.

Results:—In resume, the meeting also recorded these results:

1. Election of Sir William Pennington, British, as president of civil aviation for the United Kingdom, to be director-general of IATA from April 1, 1946, to December 31, 1952, at a reported salary of \$28,000 (Canadian) annually.

2. Election of Hides Abi Pasha of MERR Airwork, Egyptian line, to succeed Symington when the next annual meeting opens next October in Chicago.

3. Enlargement of the executive committee from nine to 13 by the addition of Dr. Hassan Swidki Pasha of MERR to hold office until the close of next year's meeting, and H. B. Wilson of TWA until the close of the 1947 meeting, and Maj. Gen. T. B. Bism of China National Aviation Corp. until the close of the 1948 meeting.

4. Adoption of a resolution authorizing establishment of branch offices at New York, Paris, Rio

de Janeiro, China, Johannesburg and Sydney as and when deemed advisable.

5. Appointment of Dr. L. C. Tombs to continue as acting secretary and treasurer.

6. Appointment of members of the financial, legal, technical and traffic committees.

7. Approval of a budget not made public, for 1946 as submitted by the executive committee and a schedule of fares for the different categories of members for 1946.

8. Adopting of a resolution to the effect that provisions of the Articles of Association regarding termination of membership for failure to operate shall not apply before January 1, 1947.

9. Approval of the report of the executive committee, including the organization of a secretariat and head office and the rules and regulations as adopted by the committee at its meeting last summer in Paris.

Pattern Controls Set To Terminate

A letter terminating wartime controls over the air service pattern has been submitted to Secretary of War Patterson. He was expected to sign it momentarily, possibly over the weekend.

Removal of these controls, under which changes in the wartime service pattern proposed by the airlines were subject to War Department approval, has been urged since the end of hostilities, Oct. 18 (AVIATION NEWS, Sept. 14).

War Rule:—Devised to attain the utmost utilization of equipment during the war, the controls reached their peak in 1943 and early 1944. In March, last year, the Army turned over to Civil Aeronautics Board the duty of passing on proposed changes, though it was satisfied in each case and reserved the right to veto. In recent months that right has been used less and less.

The controls were authorized by Executive Order 9074, which in turn was suggested by a memorandum May 6, 1942, covering both priorities and service change control. This memorandum was rescinded last Sept. 6. Since that time there has been but one instance in which the control was employed. In that, the Department approved a request by American Airlines to withdraw service to Long Beach and Palm Springs, Calif.

Traffic Potentials Mark Pacific Case

Final determination now largely dependent upon detailed examination of passenger possibilities as stressed during oral arguments.

Traffic generating possibilities will figure prominently in the Civil Aeronautics Board's final determination of routes to be certified across the Pacific and between the United States and Alaska, judging from oral argument in the Pacific case last week. Various phases of the traffic question were emphasized by most of the airlines' legal counsel, and further through CAB interrogation.

Request Route:—Arguing for a North Pacific route were Northwest Airlines, Pan American Airways, Constellation, Central Airlines, and Transcontinental & Western Air. Northwest, recommended by Examiners Paul Neumann and Lawrence J. Koster for a route from New York and Chicago to the Philippines (Aviation News, Sept. 2), asked the board to make Seattle a gateway to the Orient by granting it a Seattle-Alaska segment connecting at Anchorage. The extension, Northwest contended, would strengthen the entire North Pacific route by tapping additional traffic up the Pacific Northwest coast.

Pan American, adhering to its traditional view against competition, maintained that the volume of air traffic in the Pacific would not be sufficient to permit two competing lines to operate economically and efficiently. Should the board certificate another carrier to the Orient, PAA felt that it should be allowed to "compete" over the best and shortest routes, and add which "it has the vision to foresee and the courage to pioneer." Rather than be "shackled" in the central Pacific route recommended by the competitors, PAA asked to be given a choice of competing for traffic from Chicago and points east by operating over the northern route from Seattle.

PAA contended that the board should follow the trade area concept established in the North Atlantic case and select the carrier on the basis of ability to generate traffic. In this connection, PAA pointed to the large number of cities it served and could link with the Orient, including New York, Chicago, Detroit and Washington.

TWA argued for a route from San Francisco to India via Seattle, Alaska, and traffic producing areas in Japan, Korea, Manchuria, and China. Such a route would connect with that granted TWA in the North Atlantic case and enable it to provide round-the-world service. The carrier and first chairman of the route was necessary in order not to place it in a disadvantageous position resulting from leaving the route in the middle of the important Europe-Asia traffic flow.

CAB Member Oswald Ryan raised a significant question which the board will probably consider in making its final decision. He asked whether CAB is to act only in view of section 2 of the Civil Aeronautics Act requiring preservation of inherent advantages of air transportation, to permit non-stop international operations, or to be considered in cases where a carrier is required to stop at intermediate points is the factor of

traffic diversion from other carriers.

Proposals for new or additional U. S.-Asian service, involving applications by Alaska Airlines, PAA, United Air Lines, Western Air Lines, and Woodley Airways, were closely scrutinized by board members. Applicants were questioned on accurate and distribution of traffic, passenger estimates, effect of competition, and ratio between traffic and population.

Philadelphia Terminal

Representatives of Eastern, National, TWA, and United airlines have submitted plans for an international air terminal at Philadelphia's Southwest Airport, a commercial on North Atlantic air routes.

Blueprints envision an ultra-modern administration building, ultimately to have four wings and cost an estimated \$3,500,000. The first structure would cost between \$700,000 and \$2,000,000.



At Pacific Case Arguments: The Civil Aeronautics Board, operating at 95 percent of its statutory five-man strength, is shown above as it listened last week to oral arguments in the Pacific route case. The four Board members have heard five oral arguments since the resignation of Vice Chairman Edward P. Warner, Sept. 20, of which the Pacific case, including international routes, was the most interesting. Others were in the Hawaiian, Rocky Mountains, West Coast, and Florida route proceedings. The Board's restoration to full strength awaits appointment by President Truman of a successor to Warner. Left to right, members shown are Oswald Ryan, Chairman L. Welch Pogue, Harlow Branch and John Lee. Other picture shows the ground and air Pacific operations. Seth Bachman, attorney for Northwest Airlines, is speaking.





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Chicago Board Picks New Airport Site

\$40,000,000 project would be located 17 miles northwest of Loop, beyond present field.

Prospects for Chicago's new airport improved last week with a recommendation by the city's Airport Selection Board of a site near Park Ridge, Ill., about 17 miles northwest of the Loop and four and a half miles west and 33 miles north of the present municipal airport.

The new location, unanimously chosen by the Selection Board, is a field adjoining the cleared plot, owned by the Army, where Douglas Aircraft Corp. made four-engine cargo planes during the war. Total tract may encompass 5,235 acres, with two highway interchanges. Cost is estimated at \$40,000,000.

Since two weeks will be required to draft the report and prepare accompanying exhibits, it will not be presented formally to Mayor Edward J. Kelly before Nov. 15. Chicago's city council will have final say on the selection, but since the mayor is assumed to have approved the report, the council is expected to go along.

The Board recommends that the present airport be used pending completion of the new one, and thereafter for whatever use it can best fit. After the new airport is placed in service the present one likely will be used for cargo and unscheduled flying for a time, and eventually for cargo only.

Details.—Under the Board's plan, terminal buildings would occupy an area 8,000 x 4,500 ft. in the center of the new field, reached by a tunnel from a superhighway. Passenger hangars would be placed at 60 1/4-acre sites of retail land at the edge of the airport and between runways. Runways would be of the tangential type, eight of them 8,136 ft. long, and 12 of 7,700 ft. Two of the latter might possibly be extended later to 77,000 ft.

Estimates are that the distance of the proposed airport from the Loop will be cut to 15 miles by present and contemplated superhighways, with eventual saving in time well under the 50 minutes needed to get to the present municipal airport 12 miles from downtown Chicago.

Expectation is that the new field

Comment Asked

The question of a separate nonmilitary category for transport planes used exclusively for cargo is being revived, and several have been asked to submit comments on the issue to the Air Transport Association not later than Nov. 10.

In promulgating a new Part 64 of the Civil Air Regulations, governing nonmilitary requirements for 141 aircraft types, the CAB recently held a hearing on the subject. The regulations to publish establishment of separate standards of airworthiness for passenger and cargo aircraft. The result is that certification requirements will be the same for planes in either group.

Representatives of the airlines took to stand on the question, pleading lack of time to study 64. Manufacturers advocated a separate cargo category, and the Aircraft Manufacturers Association expects to renew the request, with the support of additional data.

ATA, calling attention to the possibility that a separate cargo category might mean different safety standards for cargo planes than those used only for cargo passengers, has asked airline consent to aid it in formulating its own policy.

will be big enough to handle when over traffic may develop in the next 25 years. Comparison with the present municipal airport, which handles about 250 operations daily and has a top capacity of 120 an hour, a part of the site contemplated could handle 300 arrivals and departures hourly, according to suppliers of the plan.

Chairman of the Selection Board, which also is charged with securing studies to develop the pattern for the entire airport program of the Chicago area, is Morris C. Meigs, aviation enthusiast and former newspaper publisher.

ATA Meeting Set

Annual meeting of the Air Transport Association membership will be held at the Carlton hotel in Washington Nov. 27 for election of directors and consideration of other business. The present board will meet a day earlier.

Prompt Market Bid Asked By Officials

An appeal for prompt and efficient action by all U.S. aviation, government and private, in competition for post-war aviation markets was made last week by three CAA officials recently returned from a world trip as guests of the Air Transport Command.

The three, who visited 52 points along a 37,000-mile route to study air operations and facilities, are Fred M. Lester, assistant administrator for safety regulations, Chris M. Lempe, director, Air Navigation Facilities Service, and J. L. Kirmey, director, Flight Operations Service.

Customer's Loss.—Among the 14 points in their conclusions was the warning that lack of action on the part of U.S. aviation is causing "customers" to buy equipment and seek advice elsewhere. They also urged immediate action by the U.S. to obtain control of certain lines and routes and to establish when de-activated by the military, among them certain Pacific islands needed to alternate stops.

Citing a wide difference between military and commercial transport operations, the trio criticized against relocation in CAA requirements for navigational facilities for civil air carriers and competence standards for pilots and crews. They urged that carefully selected CAA personnel be stationed in each of the countries to be served by U.S. flag lines.

PCA Files Notice Of Service Changes

Pennsylvania-Central Airlines notified the CAB last week of a number of service changes effective Nov. 13, among them resumption of service between Wichita and Knoxville via five intermediate points on AM 81. The service had been suspended since May, 1942, because of the war.

New points on the route will be Elizabeth City, N. C. Oliver, previous service are Rocky Mount, Raleigh-Durham, Greensboro-Raleigh Point, and Asheville-Brevardville. Hickory, N. C., will be included after completion of airport improvements there. The airline also will inaugurate service to Elmira-Corning and Rochester, N. Y., on AM 34. Service to Williamsport, Pa.,

on the same route, suspended since October, 1946, because of inadequate airport facilities, will be resumed.

Five non-stop round trips daily are being started between Washington and Akron on AM 16, Detroit and Youngstown on AM 14, Flint and Grand Rapids on AM 15, and Washington and Rochester on AM 24.

PCA's notification was the only new one received by the Board up until late last week, but United Air Lines announced separately it will inaugurate direct service into Detroit, effective Jan. 1.

TWA International Officials Announced

Top officials of Transcontinental & Western Air, new International Division, were announced last week by T. B. Wilson, managing director and chairman of TWA's Board.

Otto F. Bryan will be vice-president, operations, Dean J. Hanson, director of traffic, and Marion C. Sheehan, director of budgets and methods.

Bryan has been with TWA since 1923. A 2,000,000-mile pilot, he was vice-president in charge of

war projects, directing TWA's International Division which operated for the Air Transport Command. Hanson previously was in the steamship business, going to TWA from the American President Lines, with which he was general passenger agent in charge of the Eastern area until 1933. Sheehan was appointed to TWA after three and a half years with the Army Transportation Corps in the China theater. He has 25 years of transportation background.

The new division was created recently by TWA directors to handle its overseas operations. The company now consists of one executive and two operating divisions — International and Transcontinental. Paul E. Richter, formerly of the Naval Air Transport Service, has returned to TWA as executive vice-president. E. Lee Talbot is senior vice-president. J. A. Collins, vice-president of transportation, will continue in charge of the Transcontinental Division operation, according to President Jack Hyde.

As part of the changes in the creation of the International Division, Robert E. Lees will be executive assistant to Wilson. Lees has been with TWA since April, 1943.



PCA INSPECTS C-54 CONVERSION:

PCA officials visited the Glenn L. Martin Co. plant at Baltimore last week to inspect conversion progress on the basic type C-54s recently acquired by the airline. The ships are being fitted to carry 55 passengers. First is to go into service by the end of the year and others in an initial fleet of 12 early in 1946. Photo shows, left to right, Vice-presidents J. H. Carmichael and Luther Harris, Chief Engineer B. J. Purling, and President C. Bedell Moore of PCA, and Payson Magruder and Warren Jones of Martin.



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"On the basis of airline estimates," Vierling continues, "this plane has made a total of 13,027 landings—averaging four landings for every three hours of flight during military service, and one landing per hour during commercial work."

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